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ANNUAL MANAGEMENT REPORT FOR SUBSISTENCE, PERSONAL USE, AND COMMERCIAL FISHERIES OF THE YUKON AREA, 1992

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PREFACE

This report is one of a series of annual management reports detailing the management activities of the Division of Commercial Fisheries in the Yukon Area. Data presented in this report supersedes information found in previous management reports. The 1960-1974 management reports for the Yukon Area appear in the Arctic-Yukon-Kuskokwim Area report series. The 1975-1986 management reports appear in the Yukon Area Annual Report series. The annual management report became a part of the Regional Information Report (RIR) Series in 1987.

This report includes summary data from many special research projects. Complete documentation of many of these projects and results appear in separate reports. The reader is advised to consult other cited reports for specific information. Some of the data presented is preliminary and may be presented with minor differences in future reports. To simplify use of this report, historical tabular data are separated into various appendix series.

1.0 YUKON AREA INTRODUCTION

This annual management report details the activities of the Division of Commercial Fisheries in the Yukon Area. The Division of Commercial Fisheries of the Alaska Department of Fish and Game is responsible for the management of commercial, personal use, and subsistence fisheries in the Yukon Area.

1.1 *Description of Area*

The Yukon Area includes all waters of the Yukon River drainage in Alaska and coastal waters from Canal Point Light, near Cape Stephens, to the Naskonat Peninsula. The Yukon River is the largest river in Alaska, draining approximately 35 percent of the state, and is the fifth largest drainage in North America. The river originates in British Columbia, Canada, within 30 miles of the Gulf of Alaska and flows over 2,300 miles to its mouth on the Bering Sea, draining an area of approximately 330,000 square miles.

Subsistence fishing occurs throughout most of the Yukon River drainage. Subsistence use has the highest priority among beneficial uses of the resource. A majority of the commercial fishermen take salmon for both commercial and subsistence purposes. In order to enforce commercial fishing regulations, it is necessary to place restrictions on the subsistence fishery. However, throughout the fishing season, substantially more fishing time is allowed for subsistence than for commercial purposes.

Legislation that regulates subsistence was amended in 1986 to limit subsistence fishing to rural Alaska residents. To allow continued participation in salmon fisheries by residents of non-rural communities, the Board of Fisheries created personal use salmon fisheries. In December 1989, the Alaska Supreme Court overturned the 1986 subsistence law as unconstitutional, and since July 1, 1990, all state residents qualify as subsistence users. During the 1992 season, all fishermen that had been required to obtain personal use permits in the past have fished under subsistence regulations.

For management purposes, the area is divided into six districts and ten subdistricts (Figure 1). These districts or subdistricts are further divided into 28 statistical areas for management and reporting purposes. Commercial fishing occurs along the entire 1,200 mile length of the Yukon River in Alaska, and in the lower 220 miles of the Tanana River. The Lower Yukon Area (Districts 1, 2, and 3) includes the coastal waters of the delta and that portion of the drainage from the mouth to Old Paradise Village (river mile 301). The Upper Yukon Area (Districts 4, 5, and 6) is that portion of the drainage upstream of Old Paradise Village to the U.S./Canada border, including the lower 220 miles of the Tanana River. Yukon River mileages are listed in Table 1.

Commercial, Indian Food Fish, sport, and domestic salmon fisheries also occur in Canada, with fishery management activities conducted by the Canadian Department of Fisheries and Oceans (DFO).

1.2 *Fishery Resources*

Important subsistence, personal use, and commercial Yukon Area fisheries include salmon and Pacific herring. Other marine and freshwater finfish are harvested primarily for subsistence use. A list of indigenous fishes found in the Yukon Area is provided in Table 2. Five species of Pacific salmon are found in the Yukon River drainage: chum salmon *Oncorhynchus keta*, chinook salmon *O. tshawytsha*, coho salmon *O. kisutch*, pink salmon *O. gorbuscha*, and sockeye salmon *O. nerka*.

Chum salmon occur in two distinct runs: a summer run and a fall run. Summer chum salmon are chiefly characterized by: earlier run timing, rapid maturation in freshwater, smaller size, and larger population. Summer chum salmon spawn primarily in run-off streams in the lower 700 miles of the drainage and in the Tanana River drainage. Fall chum salmon are mainly distinguished by: later run timing, robust body shape, and bright silvery appearance, larger size, and smaller population. Fall chum salmon primarily spawn in the upper portion of the drainage in streams which are spring fed, usually remaining ice-free during the winter. Major fall chum salmon spawning areas have been identified in the Tanana, Porcupine and upper Yukon River drainages, including areas in the Yukon Territory, Canada.

Spawning populations of chinook salmon have been documented throughout the Yukon River drainage in Alaska and Canada. Chinook salmon enter the mouth of the Yukon River soon after ice breakup during late May and early June and continue through mid-July.

Coho salmon enter the Yukon River from late July through mid-September. Although major coho salmon spawning concentrations documented to date occur in tributaries of the Tanana River drainage, information gathered through recent subsistence surveys indicate that coho salmon spawning areas may be widespread in the Alaska portion of the drainage.

Pink salmon enter the lower river from late June to late July, and primarily spawn in the lower portion of the drainage. During the past decade, large returns of pink salmon have occurred during even-numbered years.

Sockeye salmon are uncommon in the Yukon River drainage, and only a few are caught each year. Sockeye salmon harvests have been reported in the mainstem Yukon River as far upstream as Rampart (river mile 763). There have been reports of sockeye salmon spawning areas being located in the Innoko and Anvik River drainages.

1.3 *Salmon Management*

Management of the Yukon River salmon fishery is complex because of the difficulty in determining run size, harvesting of mixed stocks, multispecies salmon runs, allocation issues, and the immense size of the Yukon River drainage. The overall goal is to manage the salmon runs on an optimum sustained yield basis. Subsistence fishing has been designated by the Alaska State Legislature and the Board of Fisheries as the highest priority use. The management of the Yukon River salmon fisheries must take a conservative approach to maintain the subsistence priority, and to provide for spawning area escapements to sustain production of the resource. Accurate, inseason assessments of escapements immediately past the downriver commercial fishery are very difficult with the present available technology and funding. Fisheries within the Yukon River drainage may harvest stocks of fish that are up to several weeks and hundreds of miles from their spawning grounds. It is impossible to manage stocks separately based on current knowledge. It is hopeful that the main river sonar project operated at Pilot Station will provide inseason estimates of salmon passage for fisheries management in the near future.

The two basic regulations used to manage the commercial salmon harvest are emergency order authority and guideline harvest ranges. Emergency orders are used to open and close fishing seasons and periods, and mesh size restrictions. Guideline harvest ranges are established by the Board of Fisheries. Guideline harvest ranges have been established for chinook, summer chum, and fall chum salmon fisheries throughout the Alaskan portion of the drainage.

During the fishing season, the salmon run is monitored on a daily basis. If it becomes apparent that the run is substantially smaller or larger than needed for escapement and subsistence requirements, then the commercial harvest rates can be adjusted through the use of emergency orders.

The Division of Commercial Fisheries is responsible for the management of subsistence, personal use, and commercial salmon fisheries in the Alaska portion of the Yukon River drainage. The full-time, permanent staff assigned to the Yukon Area includes eight positions: four management biologists, three research biologists, and one field office assistant. In addition, approximately 30 seasonal employees are hired each season to assist the permanent staff in conducting various management and research studies. Also, the staff aids in the enforcement of regulations in cooperation with the Division of Fish and Wildlife Protection, Department of Public Safety.

2.0 SUBSISTENCE SALMON FISHERY

2.1 *History and Description*

Although all five salmon species are harvested in the Yukon River drainage subsistence fishery, chinook, chum, and coho salmon compose the bulk of the subsistence harvests. In portions of

the drainage, subsistence harvests of some species, particularly chum and coho salmon, are substantial and frequently exceed commercial harvests. Because of the relatively large subsistence fishery harvests, effective management of Yukon River salmon populations requires knowledge of the number of salmon harvested in subsistence fisheries.

Historically, subsistence salmon harvests were very large. Around 1930, the airplane began replacing the sled dog as mail and supply order carrier, and contributed to a gradual reduction in subsistence harvests. During the early to mid-1960s, there was an increased use of snow machines which accelerated the reduction of sled dogs. Subsistence salmon catches declined through the 1970s as increased welfare payments and employment opportunities, including commercial fishing activities, became available to rural residents (ADF&G 1985). It is likely that the sale of subsistence-caught salmon roe (legal from 1974 through 1977) increased subsistence chum salmon catches above normal use levels during that period. Beginning in the early 1980s, due, in part, to a renewed interest in sled dog racing, the number of dogs per family has increased in some portions of the drainage. Coincidentally, there was an increase in the subsistence salmon harvest. In addition, the human population along the river has increased, which may also relate to increased subsistence salmon harvests. Excluding the greater Fairbanks area (population 74,031 in 1990), some 40 communities, with a total population of approximately 11,000 people of primarily Yupik Eskimo and Athabaskan Indian descent, are located within the Alaskan portion of the Yukon River drainage.

The primary fishing gear which Yukon Area households use to harvest subsistence salmon includes drift and set gillnets, and fish wheels. Subsistence fishermen operate gillnets in the main rivers and coastal marine waters. Fish wheels are used by subsistence fishermen in the upper Yukon and Tanana Rivers. Beach seines are occasionally used near spawning grounds to catch schooling or spawning salmon.

Subsistence salmon fishing occurs from late May through October, although this varies throughout the drainage. Fishing activities are based either from a fish camp or home village. However, the degree to which one or the other is more prevalent varies from village to village. Some people from communities not located along the mainstem Yukon River; such as Shageluk, Birch Creek, etc., may operate fish camps along the mainstem. Subsistence salmon fishing is often undertaken by extended family groups representing two or more households in a community. These groups, as well as members of individual households, cooperate to harvest, cut, preserve, and store salmon for subsistence use.

There is usually little wastage of the fish taken for subsistence purposes. A major portion is sun dried or smoked for later consumption, while the head and viscera may be fed to dogs. Wet weather may cause wastage during the process of attempting to dry fish. Chinook salmon are used mainly for human consumption, and while chum and coho salmon are also used for human consumption, relatively large numbers are taken to feed sled dogs. It should be noted that the practice of keeping sled dogs is much more common in the Upper Yukon Area than in the Lower Yukon Area, and it is considered a major factor affecting subsistence use.

Since the early 1960s, subsistence fishing has been managed and regulated to coincide with commercial fishing periods when the commercial fishing season is open. In all districts, additional subsistence-only-fishing time is allowed during the commercial fishing season. Prior to and following the commercial fishing season, subsistence fishing is allowed seven days per week in Districts 1-5, and during two 42-hour periods per week in District 6.

Information concerning subsistence fishery harvests within the Alaskan portion of the drainage has been collected by the department since 1961. Since 1961, the Division of Commercial Fisheries staff have conducted the subsistence surveys, except for 1988, when the Subsistence Division staff conducted the 1988 survey with the objective of improving survey data collection and analysis. Subsistence salmon catch data has been collected through the use of permits, personal interviews, catch calendars, and mailed questionnaires. Survey methodologies prior to 1988 were varied, although the basic premise was consistent--that surveyors census all known "fishing families" (groups of households which fished together) in a village. The basic methodology developed by the Subsistence Division in 1988 was to identify all households in each community and to stratify the updated community household lists by "usually fish" and "usually not fish" households (Walker et al. 1989). Substantially more fishing households were identified than on the fishing family lists used prior to 1988. Since the historical survey lists evaluated households in a broader sense (family units working together to harvest and process salmon), there is no direct correlation between fishing family and fishing household. Historical subsistence catch data collected during the personal interviews was expanded for non-contacted fishing families or households on a community basis, and expanded community harvests summed for district and total drainage estimates on an annual basis.

The stratification system developed by the Subsistence Division was further refined in 1990 and 1991 in order to improve the accuracy and precision of the drainage-wide subsistence harvest estimate (Holder and Hamner 1991). Households were classified into one of five categories based upon their level of subsistence harvest in 1988 and 1989. A stratified, random sample was drawn from the strata formed by combinations of village and use. Assuming that households tend to harvest the same number of fish in the current year as they have historically, this stratification system allows the households with the heaviest use of the resource to be sampled more intensively.

Historical chinook, summer chum, fall chum, and coho salmon harvests by village, and the 1983-1987 and 1988-1992 averages by village are summarized in Appendices A.1-A.4. It is difficult to compare summer chum salmon subsistence harvests between years because of the interrelationship between use of fish harvested for commercial roe production and subsistence purposes. It should also be noted that 1987 fall chum and coho subsistence salmon estimates for Districts 5 and 6 do not include estimates of illegal sales, but the illegal sales estimates are included under the commercial related harvest in Total Utilization Appendices F.3-F.4.

In areas where permits are required, the department depends on the returned permits and reported harvest for subsistence harvest information. Subsistence fishing permit catch information has been available since the 1970s for the following three sections of the Upper

Yukon Area: 1) the Yukon River near the Haul Road bridge between Hess Creek and the Dall River, 2) the upper portion of District 5 between the upstream mouth of Twenty-Two Mile Slough and the U.S./Canada border, and 3) the Tanana River near Fairbanks. Subsistence permits have been required for the entire Tanana River drainage since 1988. Historical permit catch information are summarized in Appendices A.5-A.7.

2.2 *Subsistence Fishery 1992*

Estimates of subsistence salmon survey harvests presented in this report are not strictly comparable to historical estimates for a number of reasons: commercially harvested fish retained for subsistence purposes were included in the estimates of subsistence harvests prior to 1988; village survey dates and the fall season fishing conditions are variable from year to year, therefore the fall chum and coho salmon subsistence survey estimates are probably lower than the actual harvest depending upon the amount of harvest which occurred after the interviews were conducted; and the sampling design and questions have changed periodically throughout the history of the program (Brannian and Gnath 1988; Walker et. al. 1989; Holder and Hamner 1991; Bromaghin and Hamner 1992). Although rigidly comparing the historical harvest estimates of subsistence salmon to more recent estimates is difficult due to the varied methodologies, it is felt that the estimates do reflect harvest trends.

The total number of salmon harvested in the Alaskan portion of the Yukon River subsistence fisheries in 1992 were estimated from the stratified random sampling program, the harvests reported by subsistence permit holders, combined with department test fish given to the public. A total of 47,077 chinook, 142,192 summer chum, 107,808 fall chum, and 51,980 coho salmon were estimated to have been harvested by 1,335 fishing households in 1992 (Table 3). Further information regarding the 1992 Yukon River subsistence salmon harvest can be found in Holder and Hamner (in press).

The number of salmon harvested by residents of surveyed communities was estimated using stratified random sampling techniques (Cochran 1977). The 1992 survey database contained 2,309 households in 34 villages, including the villages of Hooper Bay and Scammon Bay. The stratified random sampling design identified 1,093 of these households which were to be surveyed in these villages. A total of 865 households, or 80 percent of the identified households, were contacted. An estimated total of 38,167 chinook, 127,323 summer chum, 65,134 fall chum, and 31,778 coho salmon were estimated to have been harvested by an estimated 1,069 fishing households. Estimates of the 1992 subsistence salmon harvest by village, with the 95 percent confidence intervals, are summarized in Table 5.

A total of 442 subsistence fishing household permits were issued during the 1992 fishing season, including 10 Delta River fall chum salmon carcass collection permits. The subsistence permit catches were the total of the harvests reported on 416 permits returned through March 23, 1993. A total of 7,663 chinook, 10,888 summer chum, 40,213 fall chum, and 17,645 coho salmon were reported to have been harvested by households fishing in permit required areas.

Additionally, 1,897 fall chum salmon carcasses were collected from the Delta River. Subsistence harvests taken by permit fishermen in 1992 are summarized in Table 4, and historical permit catch information in Appendices A.5-A.7.

Department test fisheries gave away a total of 1,828 chinook, 4,101 summer chum, 2,572 fall chum, and 2,557 coho salmon to households in the villages of Emmonak, Kotlik, and Nenana. These salmon were assumed to replace salmon which would have been obtained through more traditional fishing activities; therefore these salmon were combined with the village subsistence fish harvests of the recipient households.

3.0 PERSONAL USE SALMON FISHERY

3.1 *History and Description*

In the spring of 1986, the Alaska Legislature redefined subsistence fishing in Alaska as a rural activity. The Alaska Board of Fisheries and Game were required to define communities and areas of the state as being either rural or non-rural. In the spring of 1987, the number of communities in the Yukon and Tanana River drainages were designated non-rural, primarily affecting residents of the greater Fairbanks area. Residents of those areas were no longer eligible to participate in subsistence fishing for fall chum salmon since the Board of Fisheries established a Yukon Area personal use fall chum salmon fishery for non-rural state residents which became effective July 10, 1987. The Board of Fisheries expanded the personal use fisheries in the Yukon Area to all salmon species and whitefish and suckers during the November and December board meeting of 1987 (effective April 2, 1988). However, effective July 1, 1990, the Alaska Supreme Court ruled in McDowell versus the State of Alaska that every resident of the state was an eligible subsistence user. Since the 1990 season, all fishermen have fished under subsistence fishing regulations, and no personal use permits have been issued.

Personal use fisheries were regulated much the same as subsistence fisheries. However, personal use fishermen are required to possess a resident sport fishing license, and salmon taken for personal use could only be used for human consumption or bait. For the most part, personal use fishermen participated as subsistence fishermen prior to the establishment of personal use regulations in 1987 and after the personal use regulations became ineffective in July 1990.

3.2 *Personal Use Fishery 1992*

Although personal use fishing regulations were still valid for Subdistricts 6-A, 6-B, and 6-C during the 1992 fishing season, all Alaskan residents were eligible to harvest fish under subsistence fishing regulations. Subsistence permits were issued to all non-rural households which fished in a permit required area. No personal use permits were issued to non-rural households for fishing in the Yukon Area during the 1992 fishing season. Historical personal use harvest information are summarized in Appendices B.1 and B.2.

4.0 COMMERCIAL SALMON FISHERY

4.1 *History and Description*

The first recorded commercial salmon harvest in the Alaskan portion of the Yukon River drainage occurred in 1918. Relatively large catches of chinook, chum, and coho salmon were made during the first four years of the fishery (ADF&G 1985). The majority of the catch was taken outside of the Yukon River because of restrictions imposed within the river. The commercial fishery was closed from 1925 through 1931 because of concerns for the existing large subsistence fishery. Commercial fishing for chinook salmon was resumed in 1932 at a lower harvest level. A fishery has occurred annually since 1932. Commercial catches of chum and/or coho salmon occurred during 1918-1921, 1952-1954, 1956, and since 1961.

Chinook salmon commercial catches within the Alaskan portion of the drainage began increasing during the late 1970s (Appendix E.1). Chinook salmon commercial catches averaged 140,692 fish during 1980-1984. Concern for possible over-exploitation during this period resulted in reduced harvests, averaging 107,177 fish during the recent five-year period (1987-1991). The majority of the commercial chinook salmon harvest occurs in Districts 1 and 2.

In February 1990, the Board of Fisheries established a river-wide guideline harvest range of 400,000 to 1,200,000 summer chum salmon. The board established guideline harvest ranges for districts or subdistricts using the 1975-1989 average harvest information. Summer chum salmon commercial sales have averaged 639,179 fish (596,225 in the Lower Yukon Area, and 42,954 in the Upper Yukon Area) and 183,681 pounds of roe annually during the period 1987-1991 (Appendix E.2). Summer chum salmon commercial harvests increased during the 1980s as a result of regulation changes, greater availability of processing facilities and tendering, generally higher prices paid to fishermen, development of Japanese markets, and the occurrence of several very large runs. The majority of the harvest takes place in Districts 1 and 2 and Subdistrict 4-A.

The commercial fishery for fall chum salmon began in the early 1960s. Fall chum salmon commercial harvests increased substantially in 1979 (Appendix E.3). Observations of low spawning escapements from 1982 through 1984 resulted in reduced harvests to an average estimate of 161,180 fall chum salmon for the recent five-year period (1987-1991). Fall chum salmon roe sales have averaged 9,663 pounds annually (1987-1991).

Coho salmon returns to the Yukon River are of lesser magnitude than fall chum salmon, and are taken incidentally to the commercial fishery for fall chum salmon. There has been a trend of increasing coho salmon harvests since 1984 (Appendix E.4). Pink salmon commercial sales have been very small due to a limited market.

4.1.1 Lower Yukon Area

Since the onset of the commercial salmon fishery in 1918, the majority of the Yukon River harvest has occurred in Districts 1 and 2 where fishing and processing effort is concentrated and flesh quality is optimal. With the advent of a Commercial Fisheries Entry Commission (CFEC) limited entry program in 1976, fishing effort in terms of the number of participants stabilized, but efficiency has increased. From 1976 through 1990, an average of 705 CFEC gillnet permits have been issued annually (Appendix C.14). Lower Yukon River permit holders may operate either set or drift gillnets and may transfer between Districts 1, 2, and 3. Set gillnets are commonly used near the river mouth, but drift gillnets are the predominant gear type used elsewhere.

Historically, the Lower Yukon Area was primarily managed for the harvest of chinook salmon. Beginning in 1961, when chinook salmon catch quotas were eliminated for Districts 1 and 2, and continuing through 1981, the fishery was regulated by scheduled weekly fishing periods with the season opened by a published regulatory date. Fishing time during the chinook salmon season was allowed for four days a week during 1961-1967, but was reduced to 3½ days a week beginning in 1968, 3 days a week in 1974, and 2½ days a week in 1977. From 1982-1986, fishing periods of 24 hours in duration generally occurred twice weekly. During 1987, 12-hour periods were introduced, and during 1988, all unrestricted mesh size periods were 12 hours in duration. Since 1989, unrestricted mesh size periods have been 6, 9, or 12 hours in duration.

Since 1981, a 60,000 to 120,000 chinook salmon guideline harvest range has been in effect for Districts 1 and 2 combined. In District 3, a guideline harvest range of 1,800-2,200 chinook salmon was established in 1979. Beginning in 1982, the opening of the commercial fishing season and fishing periods have been established by emergency order in the Lower Yukon Area.

Sale of other species of salmon captured during the chinook salmon season, excluding the 1920s, has been allowed only since 1967. The incidental catch of summer chum salmon was limited during the chinook salmon season as fishermen could only use gillnets of eight inch minimum stretched mesh. However, beginning in 1970, each fisherman could substitute up to 50 fathoms of gillnet of any mesh size in Districts 1 and 2. In 1973, all mesh size restrictions were eliminated during the chinook salmon season (from June 1 through early July).

A regulation was promulgated in 1973 which specified that gillnets of six inch mesh size or less could be fished after a specified date in early July in Districts 1 and 2. Beginning with the 1976 fishing season, a regulation was promulgated which established a flexible range of dates from June 27 to July 5 in Districts 1 and 2, and July 5 through 15 in District 3, after which only gillnets of six inch maximum mesh size may be used. Effective for the 1985 fishing season, a regulation was adopted which eliminated specific dates and implemented emergency order authority for establishing restricted mesh size periods (six inch maximum mesh size) in Districts 1, 2, and 3. Additionally, the Board of Fisheries issued a directive to the department to provide for summer chum salmon directed fishing periods prior to the end of the chinook salmon season if the summer chum salmon run was average or better in strength.

A combined guideline harvest range of 251,000 to 755,00 summer chum salmon was established for Districts 1 and 2 in 1990. The District 3 guideline harvest range was 6,000 to 19,000 fish.

Since 1961, the commercial fishing season in the lower Yukon districts has been reopened following the closure of the chinook and summer chum salmon season to allow harvest of fall chum and coho salmon. A 200,000 fall chum salmon quota was implemented for the combined lower three districts in 1974. Also, fishing time was reduced from four to three days per week in Districts 1 and 2. These actions were necessary to stabilize the catch and to provide for an expanded harvest in the Upper Yukon Area. In 1979, fishing time was reduced further to two days per week, and the 200,000 quota was replaced by a flexible guideline harvest range of 120,000-220,000 fall chum salmon for the Lower Yukon Area.

Beginning in 1983, fishing time has been regulated by emergency order in Districts 1, 2, and 3. From 1983 through 1985, two 12-hour fishing periods per week were established by emergency order in Districts 1 and 2, except that fishing time remained at two days per week for setnet fishermen in the coastal Setnet Only Area of District 1. The coastal Setnet Only Area is allowed more fishing time because of the logistical affect tides have on the fishery. Fishing time in District 3 was reduced from three to two days a week. Also, a seven to ten day season closure in Districts 1, 2, and 3 during late July was established in 1983.

Fishing time was further restricted in 1986 through implementation of the Yukon River Fall Chum Salmon Management Plan after observations of low spawning escapements from 1982-1984 and the anticipation of poor returns of fall chum salmon during 1986-1988. A season closure of July 15 was established to protect the early portion of the fall chum salmon run and to provide more time to evaluate run strength. Additionally, the guideline harvest range was reduced to 0-110,000 fall chum salmon for Districts 1, 2, and 3. Under this management plan, there was a possibility of no commercial fall chum salmon fishery as occurred during 1987. During 1986, 1988, and 1989, fishing period duration was restricted to as short as 12 hours in the Setnet Only Area and six hours in the remainder of the Lower Yukon Area. The current guideline harvest range of 60,000 to 220,000 fall chum salmon was established in 1990.

The harvest of coho salmon in the Lower Yukon Area is incidental to the harvest of fall chum salmon with the commercial season closing after an appropriate harvest of fall chum salmon occurs.

Nearly all of the lower Yukon River salmon catch is destined for markets as a fresh-frozen product. Freezer ships and barges are located in the vicinity of Emmonak. Fresh salmon are transported by aircraft from St. Marys and Marshall annually, and from Marshall, Russian Mission, and the Paimuit-Holy Cross area during some seasons for further processing. Beginning in 1988, with the opening of a new, longer runway in Emmonak, fresh salmon have been flown out from this village also. Hard salting operations are located at Black River and near Fish Village during some years.

4.1.2 Upper Yukon Area

Prior to 1974, the Upper Yukon Area above the confluence of the Koyukuk River was designated as District 4. By regulation, commercial fishing during the early season was allowed seven days per week until the quota of 2,000 chinook salmon was reached. Commercial fishing was allowed during the fall season (after August 15) until 2,000 chum and coho salmon, combined, were taken. Fish wheels and set gillnets are the legal gear types for commercial fishing in the Upper Yukon Area. Fishermen may not transfer between districts in the Upper Yukon Area.

The Board of Fisheries adopted several regulation changes prior to the 1974 fishing season. District 4 was reduced in size; two new districts, Districts 5 and 6, were defined; and the weekly commercial fishing period was reduced from seven to five days per week. In addition, regulations provided for increases in the upriver commercial catches: District 4 - 1,000 chinook salmon, and after August 15, 10,000 chum and coho salmon combined; District 5 - 3,000 chinook salmon, and after August 15, 25,000 chum and coho salmon combined; and District 6 - 1,000 chinook salmon, and after August 15, 15,000 chum and coho salmon combined.

Since 1974, the Board of Fisheries has enacted a number of major regulation changes in the Upper Yukon Area. Weekly fishing periods were reduced in all districts, except the upper portion of District 5, from five to four days per week, and split-period fishing schedules (two 48-hour periods) were established in 1980. Chinook, fall chum, and coho salmon quotas were replaced by flexible guideline harvest ranges beginning in 1979. The current chinook salmon guideline harvest ranges of 2,250-2,850 fish for District 4, 2,700-3,300 fish for District 5, and 600-800 fish for District 6 were established in 1981. In 1979, District 4 boundaries were redefined and new subdistricts created.

In the spring of 1988, the Board of Fisheries met in special session to take public and staff testimony on proposed salmon management practices on the Tanana River. This special session was a result of large scale, illegal salmon and salmon roe sales documented in 1987 in portions of Districts 5 and 6. During this special session, the board adopted regulations for District 6 which: 1) reduced the allowed commercial and subsistence fishing time from two 48-hour periods per week to two 42-hour periods per week; 2) specified that there be no more than one 42-hour commercial fishing period per week during the fall season; 3) required subsistence fishing permits for the entire Tanana River drainage, and established catch limits and inseason reporting requirements; and 4) expanded rights of inspection of processing plants by enforcement personnel. The board further instructed the staff to manage the fishery on the basis of existing guideline harvest ranges, indicating that these guidelines are to be exceeded only if it can be determined that doing so would not jeopardize meeting subsistence and spawning escapement requirements.

In February 1990, the Board of Fisheries adopted the Yukon River Summer Chum Salmon Management Plan and established guideline harvest ranges for summer chum salmon in the upper Yukon River. In addition, regulations were adopted which stipulated that no more than 183,000

pounds of summer chum salmon roe from Subdistrict 4-A catches may be sold annually. However, if the roe cap is reached, fishing effort may continue but only the sale of chum salmon in the round will be allowed. In the Upper Yukon Area, summer chum salmon flesh is difficult to market because of the high cost of transportation and generally advanced and variable state of sexual maturity; however, summer chum salmon roe is judged to be of high quality for making salmon caviar. The Upper Yukon Area has experienced increased sales of summer chum salmon roe since 1980. In recognition of the difficulty in estimating summer chum salmon harvests in Subdistrict 4-A, the board also required that all salmon caught by permit holders during the Subdistrict 4-A commercial fishing periods be reported in numbers on fish tickets.

The majority of commercially caught salmon in the Upper Yukon Area are transported to Kaltag, Galena, Manley Hot Springs, Nenana, or Fairbanks for primary processing as a fresh-frozen product. A few salmon are sold to local markets. Small quantities of chinook and fall chum salmon are smoke-cured and sold as "strips," a local specialty product. In addition, undocumented quantities of chum and coho salmon taken commercially are dried and sold as dog food.

4.2 *Lower Yukon Area Season Summary, 1992*

Maps of Districts 1, 2, and 3 and associated statistical areas are shown in Figures 2 through 4. Figures 5 through 8 show closed waters areas of the Lower Yukon Area.

A total of 114,170 chinook and 324,523 summer chum salmon were sold in the Lower Yukon Area in 1992 (Table 16). Included in these figures are an estimated 2,206 chinook and 1,499 summer chum salmon sold illegally. A portion of the unreported harvest (781 chinook and 1,377 chum salmon) was entered into the fish ticket database as the harvests appeared to have occurred during established fishing periods with the fish tickets not turned in by the processor. The remainder of the unreported harvest appeared to have occurred during subsistence fishing periods, and is reported by district as unlawful purchases. The chinook salmon catch was 15 percent above the recent five-year average (1987-1991), while the summer chum salmon harvest was similar to 1991 and the third lowest since 1973 (46 percent below the recent five-year average). Chinook and summer chum salmon commercial catches by district and period in 1992 are presented in Tables 7 through 9. The fall chum and coho salmon commercial fishing season was not opened in 1992.

The department sold a total of 930 chinook and 1,918 summer chum salmon in District 1 test fisheries in 1992. These fish are not included in commercial sales.

A total of five processors operated in the Lower Yukon Area (Appendix C.2). The catch was either frozen on the grounds or flown fresh out of the area. A total of 679 CFEC permit holders participated in the fishery during 1992 (Appendix C.3). The salmon fishery was valued at $10.6 million to fishermen which was 28 percent above the 1987-1991 average value (Appendix C.16).

Average prices per pound were $4.12 for chinook and $0.27 for summer chum salmon. Average earnings per fisherman was $15,558.

A new regulation was adopted by the Board of Fisheries in February 1992 which required fishermen to report the number of salmon caught but not sold during commercial fishing periods on fish tickets. An estimated 60 chinook, 2,873 summer chum, and 19 pink salmon were caught but not sold during commercial fishing periods in 1992 (Table 10). Overall, compliance with this new regulation appeared to be poor and the reports are conservative. The majority of the fish caught but not sold were of poor commercial quality.

4.2.1 Chinook Salmon

According to historical test fishing data, the chinook salmon return into the lower river appeared to be late, compressed, and above average as compared with prior years. The mainstem Yukon River was generally free of ice by June 3; however, coastal waters remained ice covered until June 10. The first chinook salmon catches were reported on June 13 near Sheldons Point by a subsistence fisherman. The department's test fishing project near Emmonak recorded the first chinook salmon on June 14. Chinook salmon entry was primarily through the south and middle mouths of the Yukon River based on commercial and test net catches.

Test fishing catches at Big Eddy and Middle Mouth indicated chinook salmon abundance and run timing were most similar to the 1984 and 1985 returns. Approximately 50 percent of the chinook salmon run had entered the lower river by June 28 based upon test fishing data. Due to difficulties with one of the setnet sites, it was subjectively determined, postseason, that chinook salmon catches may have been biased low early in the season through June 27, and may have been biased high from June 28 through July 5.

Due to ice conditions along the coast, the chinook salmon run was late and compressed, with test fishing catches increasing very rapidly compared to other years. Therefore, the commercial salmon fishing season was opened by emergency order after approximately six days of increasing subsistence and test net catches in the lower Yukon River. The chinook salmon directed fishery was opened on a staggered basis: June 20 in District 1, June 22 in District 2, and July 1 in District 3. All subsequent fishing periods were established by emergency order. The first commercial fishing period in Districts 1 and 2 was 6 hours in duration, which is the shortest unrestricted mesh size period ever to open the season. Because of the compressed nature of the run and high efficiency of the fleet, subsequent fishing periods were not allowed to exceed 12 hours in duration.

The total District 1 and 2 chinook salmon harvest was 112,351 fish, 6 percent below the upper end of the guideline harvest range for the two districts and 15 percent above the 1987-1991 average harvest. The harvest includes an estimated 2,206 chinook salmon which a buyer did not report inseason.

Approximately 75 percent of the chinook salmon harvest in Districts 1 and 2 combined was taken during unrestricted mesh size fishing periods. Unrestricted mesh size fishing periods were allowed in four out of eight fishing periods in District 1, and four out of seven fishing periods in District 2. The overall average weight of chinook salmon was 21.5 pounds. The average weight of chinook salmon harvested during unrestricted mesh size and restricted mesh size fishing periods was 22.5 and 16.7 pounds, respectively. Age composition samples from the commercial fishery indicated that age-6 fish accounted for the majority of the catch.

Normally, 24-hour subsistence only fishing periods are established by emergency order every other weekend during the summer season in Districts 1 and 2. Additional subsistence only fishing periods were allowed this year due to the compressed entry pattern of the salmon run and to examine how short subsistence only fishing periods in between scheduled commercial fishing periods would work. On Tuesday June 23 and June 30, 12-hour and 6-hour subsistence only fishing periods were established in Districts 1 and 2, respectively. Overall, it appeared that these fishing periods worked out very well, although some fishermen were concerned about the possibility of illegal sales of subsistence caught fish. A total of 28 drifters and 5 setnets were observed on an aerial survey flown during the first District 2 subsistence only period on June 23, which appeared to be a fairly large amount of effort.

In District 3, three unrestricted mesh size fishing periods (one 12-hour, one 9-hour, and one 6-hour) were allowed. The initial delay in opening District 3 allowed the first segment of the chinook salmon run to pass through the district prior to the commercial fishery. A total of 1,819 chinook salmon were harvested in District 3, which was essentially equal to the lower end of the guideline harvest range of 1,800 fish, and 10 percent above the recent five-year average.

4.2.2 Summer Chum Salmon

Similar to the chinook salmon migration, the majority of the summer chum salmon run entered the river through the south and middle mouths of the Yukon River. Comparative test-net catches indicated that the 1992 summer chum salmon run was below average in abundance and similar to the 1990 and 1991 returns. Summer chum salmon catches were relatively strong in the test fishery from June 16 through June 26. Approximately 50 percent of the summer chum salmon run had entered the lower river by June 23 according to test fishing catch per unit effort (CPUE) data.

The total District 1 and 2 summer chum salmon commercial harvest of 324,458 fish was 45 percent below the recent five-year average, and at the 15 percent point within the guideline harvest range of 251,000-755,000 fish. The harvest includes an estimated 1,499 summer chum salmon which a buyer did not report inseason. A portion of the unreported harvest (1,377 chum salmon) was entered into the fish ticket database as the harvests appeared to have occurred during established fishing periods with the fish tickets not turned in by the processor. Approximately 75 percent of the summer chum salmon harvest in Districts 1 and 2 was taken during fishing periods restricted to six inch maximum mesh size gillnets. A total of four

restricted mesh size periods were allowed in District 1 and three restricted mesh size periods in District 2.

Preliminary age composition information from Districts 1 and 2 indicated that the commercial catch was composed primarily of age-5 fish, with age-6 fish comprising a larger proportion of the catch than normal, and age-4 fish accounting for a much smaller proportion than normal. The average weight of summer chum salmon in the lower river commercial catch was 6.9 pounds.

There were no restricted mesh size fishing periods in District 3. A total of 65 summer chum salmon were sold from three unrestricted mesh size fishing periods in District 3. Poor quality of summer chum salmon and market conditions were factors in the low harvest, which was well below the low end of the guideline harvest range for this district.

4.2.3 Pink Salmon

No pink salmon were sold in 1992 due to poor market conditions. The pink salmon run appeared to be one of the largest on record with large test net catches in both 5.5 and 6.0 inch size gillnets during the month of July. Pink salmon escapement to the Andreafsky River may have been in excess of 1 million fish.

4.2.4 Fall Chum and Coho Salmon

A below average return of fall chum salmon was expected in 1992 based upon evaluation of parent- year escapements. Expectations were for a very limited commercial harvest, if any commercial fishery were to be allowed at all. Because the 1988 parent-year escapements were relatively good only in the upper Tanana River, the greatest likelihood for a commercial fishery to be allowed in 1992 was in the upper portion of the Tanana River (Subdistricts 6-B and 6-C).

Since the Yukon sonar project at Pilot Station was not fully operational in 1992, the lower Yukon River test fishing catches was the primary method to assess run strength. The management strategy involved comparing the inseason cumulative test fish CPUE with the overall average cumulative CPUE for 1980-1991. It was planned to make a determination of whether or not to reopen the lower river commercial fishery by approximately August 4. The fishery would remain closed if the test fish CPUE was below the overall average CPUE.

Fall chum salmon migratory timing into the lower river in 1992 appeared to be average; however the run appeared to be much more compressed than normal. There was one major pulse of fall chum salmon which entered the Yukon River between August 4 and August 7. Comparative lower Yukon River test fishing data indicated that the 1992 fall chum salmon run was below average in abundance and similar to the 1988 and 1990 returns. Test fishing data indicated the coho salmon run was above average in magnitude and average in run timing. The lower river test fishing cumulative CPUE for coho salmon was the second largest on record through August 24 when test fishing was terminated.

The Lower Yukon Area fall chum commercial fishing season was not reopened in 1992 due to below average fall chum salmon abundance and the need to improve spawning escapements for most stocks from the parent-year levels. The department agreed to wait until August 8 to determine whether the commercial fishing season would reopen or not at a fishermen's meeting in St. Marys on July 24. As of August 7, the cumulative test fishing CPUE for fall chum salmon was 11.85, which was below the mean cumulative CPUE for the years 1980-1991 of 13.54. In addition, test fish age composition data indicated that the proportion of age-4 fall chum salmon was well below other years, which suggested a poor return from the 1988 parent-year. Therefore, the run was judged to be below average, and on August 8 the department announced the decision not to open the fall season commercial fishery.

Although the 1992 coho salmon run was judged to be above average in abundance, commercial fishing was not possible due to the status of the fall chum salmon stocks which appeared to be of below average abundance. Normally the commercial harvest of coho salmon is dependent on the timing and frequency of the fishing periods allowed for fall chum salmon.

The Yukon River sonar project at Pilot Station has been estimating daily passage of migrating salmon for six years (1986-1991). In 1992 the sonar project did not operate. There were two reasons for the reduction in operation in 1992: 1) the department purchased new sonar equipment which may enable the department to obtain more accurate counts of migrating salmon; and 2) the department explored the possibility of moving the sonar site slightly downstream of the present location. The sonar project will return to full operation in 1993.

4.2.5 Lower Yukon Area Enforcement

Fish and Wildlife Protection (FWP) began an investigation several months prior to the commercial fishing season when information was received that Schenk Seafood Sales Inc. was purchasing subsistence caught chinook salmon on the lower Yukon River. On June 30, 1992, fourteen troopers from the Statewide Investigations Section and one Alaska State Trooper from St. Marys served a search warrant in the office aboard the processing vessel Fort Yukon and boarded several Schenk tenders.

Troopers discovered records on the Fort Yukon indicating that Schenk Seafood Sales had purchased subsistence caught salmon from several fishermen. A number of fish tickets were also discovered that had not been turned in to ADF&G within the required 48-hour reporting period.

Upon these discoveries, FWP broadened the scope of the warrant to include all records of the Schenk operation for the 1991 and 1992 fishing seasons. The investigation revealed that Schenk was purchasing illegally taken chinook and chum salmon from area fishermen. This scheme was known as "custom freeze" by Schenk employees. It was also discovered that Schenk was not withholding child support payments as required by the Department of Revenue. Fish purchased illegally were not reported to ADF&G.

The seized records indicated that Schenk Seafood Sales Inc. purchased a total of 75,219 pounds of chinook salmon (3,632 fish) and 15,236 pounds of chum salmon (2,311 fish) in 1991, and 51,111 pounds of chinook salmon (2,206 fish) and 11,187 pounds of chum salmon (1,499 fish) in 1992 which were not reported to ADF&G. The value of the fish to Schenk was in excess of $687,000.

On August 26, 1992, Mr. L. George Schenk plead no contest to thirty misdemeanor counts of commercial fishing violations relating to unlawful purchases of salmon on the Lower Yukon River in 1991 and 1992. Mr. Schenk was sentenced to a $400,000 fine with $350,000 suspended, with $50,000 to pay. He was also sentenced to serve one year in jail with six months suspended. Mr. Schenk was placed on probation for three years, and was ordered not to participate in any commercial fisheries related activity in the State of Alaska and to have no violation of statutes or regulations related to commercial fishing.

On July 21, 1992, Mr. Schenk entered into a civil settlement agreement with the State of Alaska. Mr. Schenk agreed to pay the state $900,000 in civil settlement for fish and game violations, and an additional $50,000 to the Alaska Department of Revenue, Child Support Enforcement Division, for violations of child support withholding regulations. Mr. Schenk agreed to sell all of his processing equipment and tendering fleet. However, he could not do so in the time allowed, and the State of Alaska seized all of his equipment and fleet. The cases of six fishermen involved in illegal fish sales have been adjudicated, and approximately nine more cases are pending.

Several regulatory proposals to prevent sales of subsistence caught salmon in the Lower Yukon Area were discussed at a fishermen's meeting held in St. Marys on July 24, and at a Lower Yukon Fish and Game Advisory Committee meeting held in Alakanuk on December 11. There were three major proposals supported by the fishermen and the department: 1) require immediate dorsal fin clips on subsistence caught chinook salmon, 2) separate commercial and subsistence fishing periods, and 3) require marking of commercial fishing vessels in some manner (such as with CFEC permit numbers or ADF&G numbers).

4.3 *Upper Yukon Area Season Summary, 1992*

The Upper Yukon Area consists of Districts 4, 5, and 6, which includes approximately 1,200 river miles of the Yukon and Tanana Rivers. A total of 143 CFEC salmon permit holders participated in the Upper Yukon Area fishery during 1992. A total of 6,075 chinook, 7,790 summer chum, 15,721 fall chum, and 6,556 coho salmon were sold in the round, while an additional 120,646 pounds of salmon roe were also sold by upper Yukon fishermen in 1992. Roe sold by species consisted of 3,164 pounds of chinook salmon roe, 112,996 pounds of summer chum salmon roe, 2,806 pounds of fall chum salmon roe, and 1,680 pounds of coho salmon roe. The 1992 commercial salmon catches by district or subdistrict and period are presented in Tables 11 through 15. These totals do not include salmon sold by the department's

test fish wheel program. A more detailed analysis of the commercial catch by period, statistical area, and gear type is available in a separate report (Borba 1992)

A total of 11 processors and 12 catcher-sellers registered to operate in the Upper Yukon Area in 1992. The primary product produced by processors was fresh, frozen, or smoked salmon that was either sold locally or transported out of the area, and salmon caviar produced from salmon eggs. Licensed catcher-sellers also sold fresh, unprocessed salmon directly to the public. Upper Yukon commercial fishermen received an estimated average price per pound of $0.91 for chinook, $0.30 for summer chum, $0.39 for fall chum, $0.39 for coho salmon, and $2.82 for chinook roe, $4.53 for summer chum roe, $4.50 for fall chum roe, and $2.18 for coho salmon roe. Direct revenue to fishermen was estimated to be $768,609, which was 30 percent below the 1987-1991 average total value. Average earnings per fisherman was estimated to be $5,375.

The 1992 total estimated harvest of 7,001 Upper Yukon Area chinook salmon was 15 percent less than the recent five-year average (1987-1991) harvest (Appendix E.1). In all areas except District 4, the total estimated harvest was comprised of salmon sold in the round and the estimated number of female fish killed to produce the pounds of roe sold. In Subdistrict 4-A by regulation, and in Subdistricts 4-B and 4-C, the estimated number of male and female summer chum salmon harvested to produce the summer chum salmon roe sold was included in the guideline harvest range. The 1992 total estimated harvest of 211,396 summer chum salmon was 40 percent below the recent five-year average (Appendix E.2). The 1992 fall commercial fishery in the main Yukon River and Subdistrict 6-A of the Tanana River was closed due to the poor return of fall chum salmon. A 1992 fall season did occur in Subdistricts 6-B and 6-C of the upper Tanana River. The estimated harvest of 19,022 fall chum salmon was approximately 70 percent less than the recent five-year average (Appendix E.3). Note that the five-year average for fall chum salmon includes 1987 when the fall season commercial fishery was closed. The 1992 estimated coho salmon harvest of 7,979 fish was approximately 43 percent lower than the recent five-year average (Appendix E.4).

4.3.1 Chinook Salmon

The first Upper Yukon Area chinook salmon catches were reported by Anvik and Grayling subsistence fishermen on June 23. According to upper river subsistence and commercial fishermen harvest reports, the 1992 chinook salmon run appeared to be late in run timing and compressed in duration. The reported commercial catch of Upper Yukon Area chinook salmon does not necessarily reflect run strength for the following reasons: 1) relatively low guideline harvest ranges encourage fishermen to sell only their large fish; 2) fishermen generally elect to retain a portion of their chinook salmon catch for subsistence purposes rather than risk a commercial closure due to having exceeded the targeted chinook salmon guideline harvest amount; and 3) buyers may decide to purchase only those fish which meet a certain standard of quality or size.

The District 4 chinook salmon guideline harvest range of 2,250 to 2,850 fish applies to the entire district; although the majority of the chinook salmon harvest is sold from Subdistricts 4-B and

4-C. In Subdistrict 4-A, the chinook salmon harvest is largely incidental to the directed summer chum salmon fishery. Subdistrict 4-A fishermen sold 86 pounds of chinook salmon roe and no chinook salmon in the round for an estimated total commercial harvest of 50 fish (Table 11).

Unlike Subdistrict 4-A, fishermen within Subdistricts 4-B and 4-C are able to harvest commercial quantities of chinook salmon due to the combination of suitable fishing sites and the migration pattern of chinook salmon through these subdistricts. Due to the late migratory timing of chinook salmon, the 1992 commercial opening date was later than normal. The District 4 commercial season opened on July 5. Subdistrict 4-B and 4-C fishermen sold 1,651 chinook salmon in the round and 2,187 pounds of chinook salmon roe for an estimated total commercial harvest of 2,344 fish. The combined Subdistrict 4-A, 4-B, and 4-C commercial harvest was an estimated 2,394 chinook salmon which was near the quarter-point of the guideline harvest range.

In District 5, during the early season, the chinook salmon is the primary species of commercial and economic value due to timing of the fishery and the low availability of summer chum salmon. The District 5 commercial season opened on July 10, 1992, when it was estimated that the chinook salmon run was well distributed throughout the fishery. Two fishing periods (one 48-hour and one 24-hour) occurred in Subdistricts 5-A, 5-B, and 5-C. The reported harvest after the 48-hour opening was approximately 2,000 fish. Since the targeted harvest was for within the 2,400 to 2,800 chinook salmon guideline harvest range, a second 24-hour period was announced to allow the remaining commercial surplus to be harvested. Catch rates during the final period were higher than expected, and the total estimated harvest for the two early season periods from Subdistricts 5-A, 5-B, and 5-C was 3,398 chinook salmon (Table 13). Subdistrict 5-D fishermen fished only one 42-hour fishing period and harvested 457 chinook salmon; within the 300 to 500 fish guideline harvest range (Table 13).

District 6, the Tanana River, is generally a summer chum salmon directed fishery due to the low harvest guideline of 600 to 800 fish for chinook salmon. The first 42-hour period occurred on July 20, and fishermen harvested an estimated 719 chinook salmon. The next commercial period was delayed because preliminary information indicated less than desired numbers of chinook salmon were observed in the Chena and Salcha River spawning index areas. The second and last summer-season commercial opening occurred only for Subdistricts 6-A and 6-B on August 3 with the harvest directed towards the later running summer chum salmon. Subdistrict 6-C remained closed during the second period to allow for additional chinook salmon in the upper portion of District 6 to reach the spawning grounds. The District 6 total estimated harvest for 1992 was 752 chinook salmon (Table 15).

4.3.2 Summer Chum Salmon

The early season for District 4 opened on July 5 after department test net catches and preliminary commercial catches in the Lower Yukon Area fisheries indicated that the summer chum salmon run strength was similar to the preseason outlook. Additionally, the department waited until July 5 to ensure fish were distributed throughout the fishery, as confirmed by local subsistence catch reports. Subdistrict 4-A fishermen were limited to 24-hour periods during their

four fishing periods due to their higher catch rates. The 24-hour fishing periods allowed better fishery monitoring and a more equitable distribution of the harvest throughout the run. Subdistricts 4-B and 4-C fishermen remained on their customary 48-hour fishing periods. The targeted Subdistrict 4-A harvest of near the quarter-point (91,500 pounds of salmon roe) of the summer chum salmon guideline harvest range was reached during the fourth commercial opening. Subdistrict 4-A fishermen harvested and sold 99,701 pounds of roe for an estimated fish harvest of 184,171 summer chum salmon (Table 11). Notably different in 1992 was that no buyers purchased any fish in the round.

Subdistricts 4-B and 4-C fishermen fished six 48-hour fishing periods and sold 2,659 summer chum salmon and 11,108 pounds of roe for an estimated harvest of 27,225 summer chum salmon (Table 12). Verbal processor reports indicated that the Subdistrict 4-B and 4-C fishermen had reached the low end of both the chinook and summer chum salmon guideline harvest ranges after the sixth early season commercial fishing period. The early commercial fishing season was closed on July 25 based on the cumulative commercial harvest, decreasing catch rates, and preliminary aerial and ground survey information which were indicating poor chinook and summer chum salmon escapements.

In District 5, summer chum salmon are caught and sold incidentally to the chinook salmon harvest. The preliminary, District 5 early season harvest of 430 summer chum salmon was comprised of 102 fish in the round and 295 pounds of summer chum salmon roe (Table 13). No summer chum salmon were sold in Subdistrict 5-D in 1992 (Table 14).

Subdistrict 6-A and 6-B commercial fishermen had two 42-hour fishing periods, and Subdistrict 6-C fishermen had one 42-hour fishing period. The less-than-average fishing time produced a below average harvest of summer chum salmon in 1992. Inseason information indicated that the 1992 run of summer chum salmon into the Tanana River was below average, and the department had concerns for achieving proper escapement. The total summer chum salmon harvested was an estimated 7,228 summer chum salmon. This harvest was comprised of 5,029 fish sold in the round and 1,892 pounds of chum salmon roe (Table 15).

4.3.3 Fall Chum Salmon

Based primarily on the Lower Yukon Area department test net catch information which provided migration timing, relative strength, and age composition, the department announced on August 21 that Subdistricts 4-B, 4-C, District 5, and Subdistrict 6-A would not open for commercial fall chum or coho salmon fishing in 1992.

This was the fifth year the District 6 Tanana River commercial fishery was managed according to the Tanana River Salmon Management Plan. Although unwritten in the plan, the Board of Fisheries has directed that the guideline harvest range for the Tanana River could be exceeded if escapement and subsistence needs would not be jeopardized. The department opened Subdistricts 6-B and 6-C of the Tanana River for the first fall fishing period on September 7. Since the first period harvest of fall chum salmon (14,374 fish) was near the upper end of the

guideline harvest range (2,750 to 20,500 fish), the department announced on September 12 that it would continue to monitor the strength and timing of the fall chum salmon run to the Tanana River to determine if additional commercial fishing was warranted. On September 16, the department announced that Subdistricts 6-B and 6-C would have a second commercial fishing period of 24 hours in length. No additional commercial fishing was allowed, and the fall season was closed following the second period. During the two fall season periods, District 6 fishermen sold a total of 15,721 fall chum salmon in the round and 2,806 pounds of fall chum salmon roe for an estimated harvest of 19,022 fall chum salmon (Table 15).

4.3.4 Coho Salmon

The Yukon Area Fall Chum Salmon Management Plan specifies combined fall chum and coho salmon guideline harvest ranges for the Upper Yukon Area fishing districts. The 1992 coho salmon run outlook was for an above average return. Because of the later but overlapping run timing with fall chum salmon and the overriding importance of fall chum salmon conservation, the harvest of coho salmon has been a function of fall chum salmon management strategies. The lower Yukon test fishing data indicated average coho salmon run timing and the CPUE for coho salmon was the second largest on record through August 24 when test fishing was terminated. Although the 1992 coho salmon run was judged to be above average in abundance, commercial fishing was not possible in the majority of the Yukon Area without impact to fall chum salmon stocks that appeared to be of below average abundance. During the two fall chum salmon directed commercial periods that occurred in Subdistricts 6-B and 6-C, a total of 7,979 coho salmon were estimated to have been harvested based on the 6,556 coho salmon sold in the round and the 1,680 pounds of coho salmon roe sold (Table 15).

4.3.5 Upper Yukon Area Enforcement

The primary enforcement authority for violation of fish and game regulations is the Division of Fish and Wildlife Protection within the Department of Public Safety. For purposes of enforcing commercial, personal use, and subsistence fishing regulations within the Yukon River drainage, FWP has employees permanently stationed in McGrath, Aniak, Galena, Coldfoot, and Fairbanks. During the fishing season, officers are stationed in a temporary camp near the Dalton Highway bridge and at other locations along the Yukon and Tanana Rivers.

There are nine Fish and Wildlife Protection Officers based out of the Fairbanks and Galena offices. During the 1992 Upper Yukon Area fisheries, Fish and Wildlife Protection Officers concentrated enforcement efforts on permit holders who were fishing early, fishing over limits of gear, or not physically participating in the operation of their commercial gear. Overall, Fish and Wildlife Protection Officers noticed good compliance with season openings and closures during routine patrols.

Fish and Wildlife Protection Officers continue to be concerned and active in the investigation of roe from subsistence caught fish illegally entering into the commercial market. However, the

amount of roe entering the commercial market this way is believed to have been significantly reduced from prior years.

4.4 *Total Yukon Area Season Summary, 1992*

Preliminary estimates of commercial sales total 474,835 salmon and 120,646 pounds of unprocessed salmon roe for the Alaskan portion of the Yukon River drainage in 1992. Total sales were composed of 120,245 chinook, 332,313 summer chum, 15,721 fall chum, and 6,556 coho salmon sold in the round (Table 16). Additionally, roe sales by species totalled 3,164 pounds for chinook, 112,996 pounds for summer chum, 2,806 pounds for fall chum, and 1,680 pounds for coho salmon.

The department estimates the number of fish harvested to produce salmon roe sold in determining the total estimated commercial salmon harvest. The total estimated commercial salmon harvest includes the estimated salmon harvested to produce the roe sold and the salmon sold in the round. The estimated 1992 Yukon Area chinook salmon harvest of 121,171 fish was 13 percent above the 1987 through 1991 five-year average (Appendix E.1). The estimated commercial harvest of 543,577 summer chum salmon was only 56 percent of the recent five-year average (Appendix E.2). The commercial fall season in 1992 was closed in the majority of the Yukon Area. Subdistricts 6-B and 6-C were the only areas open to commercial fall fishing in 1992. The total estimated commercial harvest of 19,022 fall chum (Appendix E.3) and 7,979 coho salmon (Appendix E.4) was 88 percent below the recent five-year average for the Yukon Area for each species.

Yukon River commercial fishermen in Alaska received an estimated 11.3 million dollars for their catch in 1992, approximately 21 percent above the recent five-year average (Appendix E.5). There were a total of 5 processors that operated in the Lower Yukon Area (Appendix C.2) and 11 processors that operated in the Upper Yukon Area (Appendix D.2) for a total of 16 processors. Additionally, there were 12 catcher-sellers that operated in the Upper Yukon Area. A total of 822 permit holders participated in the Yukon Area commercial fishery in 1992 (Table 16).

5.0 OTHER SALMON FISHERIES

5.1 *Canadian Fishery*

Approximately 19,174 chinook salmon and 23,182 fall chum salmon were estimated to have been harvested by Indian Food Fish (IFF), domestic, sport, and commercial fishermen in 1992 in the Canadian portion of the Yukon River drainage.

5.1.1 Non-Commercial

Data has not yet been tabulated for the 1992 IFF catches. It is anticipated that the total IFF catches on mainstem Yukon River salmon stocks within the Canadian portion of the Yukon River drainage will approach 7,500 chinook salmon and less than 2,600 fall chum salmon. Likewise, harvest data for the IFF on the Canadian portion of the Porcupine River drainage are not available at this time. However, 1992 harvests are expected to approach the 1988-1991 average harvests of 233 chinook salmon and 1,992 fall chum salmon. Yearly data pertaining to coho salmon harvests in Canada are not available. However, Canadian DFO biologists state that coho salmon are generally limited to the Porcupine River drainage where they are taken in the Old Crow fishery (JTC 1992). Approximately 500 coho salmon are harvested annually in this fishery (JTC 1992).

Catch data indicate that the domestic fishery harvest of chinook salmon in 1992 was 277 fish. No chum salmon are reported to have been harvested. Additionally, in the past it was assumed that approximately 300 chinook salmon were harvested annually by sport fishermen in the Canadian portion of the Yukon River drainage. However, Canada has expressed concerns that actual catches have significantly exceeded this level (JTC 1992).

5.1.2 Commercial

The management plan for the Canadian commercial fishery on the Yukon River in 1992 were formulated to generally reflect the understandings reached during the Yukon River salmon treaty negotiations. Accordingly, the guideline harvest ranges, border passage, and spawning escapement goals for Canadian-spawned chinook and chum salmon, tentatively agreed to in the negotiations, provided the foundation for the 1992 management plan.

5.1.2.1 ***Chinook Salmon***. The elements of the chinook salmon management plan adopted for 1992 included:

1. a minimum escapement goal of 18,000 chinook;

2. a total guideline harvest range for all Canadian fishers of 16,800 to 19,800 chinook salmon;

3. a commercial guideline harvest range of 8,600 to 11,600 chinook salmon and a preseason target of 9,400 chinook salmon; and

4. a one day per week fishery for the initial two weeks of the season followed by a three day per week opening. Subsequent fishing periods were to be determined inseason based on run strength and harvest guidelines.

The opening date of the 1992 fishery, July 20, was the second latest on record, and was about two weeks later than average. Because of the late arrival and compressed nature of the 1992 chinook salmon run, the preseason plan for scheduled fishing time during the first week was altered to allow more fishing time. Subsequent weekly fishing time was scheduled on a week-by-week basis dependent on the test fish and commercial catches. Additionally, the preseason commercial guideline harvest range was altered inseason based on weekly assessments of border passage and run strength indicators. The preseason commercial harvest target of 9,400 chinook salmon was increased to 10,500 during the second week of the fishing season, ending August 2, and increased again to 11,000 during the fourth week of the fishing season, ending August 16. Preseason planned fishing time increased from one to two days during the first week, ending July 26; from one to four days during the second week, ending August 2; from two to four days during the third week, ending August 9; and from two to three days during the fourth week, ending August 16. One day of fishing time was allowed during the final two weeks of the season, ending August 23 and 30. Although fishing conditions were poor because of extraordinarily high water conditions throughout the season, commercial catch per unit effort (CPUE = catch per boat per day) was above average. The maximum number of commercial fishermen active during any one week of the chinook salmon run was 17, one more than in 1991. The preliminary estimated total commercial chinook salmon harvest of 10,877 salmon was approximately 3 percent below the 1987-91 average commercial harvest of 11,220 salmon. Approximately 95 percent of the catch was harvested in the lower fishing area, i.e., downstream from the Sixty Mile River. Sixty Mile River is located upriver of Dawson.

5.1.2.2 ***Fall Chum Salmon.*** The Canadian fall chum management plan included the following components:

1. an escapement goal of 51,200 Canadian mainstem Yukon River chum salmon;

2. a guideline harvest range for all Canadian mainstem Yukon River fisheries of 23,600 to 32,600 chum salmon;

3. a commercial guideline harvest of 20,900 to 29,900 fall chum salmon with a preseason target of 20,900 salmon in view of a below average expected return; and

4. reduced fishing time to two days/week for the first two weeks of the fall chum season, followed by openings commencing the first week of September that would be based on assessment of run strength and guideline harvest ranges.

Fishing time was reduced to one day per week during the last half of August as chinook salmon abundance declined and the chum run began to build. However, record or near record commercial catches during the first two weeks of September, ending September 6 and 13, prompted DFO to increase fishing time to three days per week. Although CPUE and catch per day remained well above average during this time, inseason projections of border passage ranged from 68,000 to 77,400 indicating that the season target should continue to be the lower end of the guideline harvest range for the balance of the season. Beginning September 14, two days of fishing per week were scheduled for the remainder of the season. Record cold temperatures and heavy snowfall hampered fishing activities during the week ending September 27. Resulting commercial catch was well below average. Fishing effort decreased to three fishermen during the next week, ending October 4 (Appendix F.3). A maximum of 12 fishermen were active in any one week during the fall chum season. The total commercial harvest of 18,576 fall chum salmon was 11 percent below the low end of the commercial guideline harvest range of 20,900 salmon and 37 percent below the 1987-1991 average harvest.

5.2 *Alaskan Sport Fishery*

Estimates of the number and distribution of anadromous salmon harvested by sport anglers in the Yukon River drainage is reported by the Sport Fish Division (Arvey and Mills 1991). From 1977 through 1991, the annual salmon sport harvest ranged from less than 700 fish in 1977 to approximately 5,000 fish in 1989. Primary species harvested were chinook, chum, and coho salmon. The geographic distribution of the sport harvests was heavily dominated by the Tanana River drainage. All historical sport fish harvest estimates are the result of a mail-out questionnaire sent to anglers selected randomly from computerized files of names and addresses of individuals who purchased sport fishing licenses.

Harvest information for 1992 was not available at the time of publication. However, it is expected that harvests for 1992 will be below those of recent years for chinook and chum salmon due to restrictions imposed in the Tanana River for conservation reasons. The recent five-year average (1987-1991) sport harvest for the Alaskan portion of the Yukon River drainage was 763 chinook, 1,099 chum, and 2,046 coho salmon.

5.3 *Alaskan Test Fishery*

Total sales by species from the department's Yukon Area test fishing program in 1992 was 962 chinook, 1,967 summer chum, 1,407 fall chum, and 1,629 coho salmon. Breakdown of department test fish sales in the lower river was 930 chinook and 1,918 summer chum salmon. Sales in the upper river consisted of 32 chinook, 49 summer chum, 1,407 fall chum, and 1,629 coho salmon.

6.0 TOTAL SALMON UTILIZATION

Since the development of the salmon roe fisheries, identifying and categorizing subsistence and commercial catches in the Upper Yukon Area has been difficult because fish harvested to produce commercial roe sales are also utilized for subsistence purposes. It is believed that many of the carcasses produced as a byproduct of the commercial fishery replace salmon that would have been harvested under subsistence fishing regulations. In 1990, the decision was made to separate harvests that produce commercial roe sales from subsistence harvests taken unrelated to commercial removal. The commercial-related salmon harvest can be viewed as utilization for both commercial and subsistence purposes. To avoid double counting, a separate commercial-related harvest estimate can be summed with the subsistence harvest for total subsistence utilization, or it can be summed with the commercial harvest for total commercial utilization when evaluating guideline harvest ranges.

The harvest of males in salmon roe fisheries, other than the summer chum salmon fishery in District 4, are believed to be either sold or retained for subsistence use and documented during the subsistence survey. In District 4, there is a much greater magnitude of summer chum salmon harvested than the historic level of subsistence harvest. Therefore, the estimated number of male summer chum salmon taken during commercial fishing are included in commercial-related harvests for District 4.

Prior to 1990, in all years except for 1988 and 1989 in District 4, the department estimated the number of females harvested to produce the roe sold by assuming 1 pound of roe per female. The number of females estimated to produce the roe sold were added to the number of fish sold in the round when estimating total commercial sales. However, in the annual subsistence surveys prior to 1990, it is unclear whether these stripped female carcasses were also reported as subsistence catch. Annual subsistence surveys since 1990 have attempted to separate the females that produced the roe sold in the commercial fisheries from the reported subsistence harvest.

6.1 *Chinook Salmon*

It is estimated that a total of 187,638 chinook salmon were harvested in the Yukon River drainage in 1992 (Table 17). In determining chinook salmon total utilization, the estimated number of females to produce the roe sold is classified as commercial related. It is assumed that the males caught during commercial periods and not sold are estimated by the annual subsistence survey. The majority (71 percent) of the 1992 total harvest occurred in the Lower Yukon Area. The 1992 total harvest is six percent above the recent five-year average (Appendix F.1).

6.2 *Summer Chum Salmon*

Estimating the total utilization of summer chum salmon presents a challenge because of the large roe fishery. In 1992, a total of 120,646 pounds of summer chum salmon roe were sold (Table 16). Approximately 88 percent of the summer chum salmon roe sold occurred in Subdistrict 4-A. Determining the total utilization of summer chum salmon in Subdistrict 4-A is further complicated by a regulation adopted by the Board of Fisheries in February 1990. Unlike the remaining districts or subdistricts, in Subdistrict 4-A, by regulation, both the males and females harvested to produce the roe sold are considered a byproduct of the commercial fishery and accounted for as commercial fish. The department additionally applied this method of classifying commercial fish to Subdistricts 4-B and 4-C. Since 1990 in District 4, only summer chum salmon caught by subsistence only fishermen were considered subsistence catch. The effect of this accounting can be seen in the decrease in the number of estimated subsistence harvest since the 1980s. In District 4, from 1981 through 1989, the average estimated subsistence harvest was 135,842 summer chum salmon. The recent three-year average (1990 through 1992) of 37,693 summer chum salmon is 72 percent below this historical average.

It was estimated that 675,688 summer chum salmon were harvested in the Yukon River drainage in 1992 (Table 17). This level of total harvest is 40 percent below the recent five-year (1987 to 1991) average (Appendix F.2).

6.3 *Fall Chum Salmon*

It was estimated that a total of 149,135 fall chum salmon were harvested in the Yukon River drainage in 1992 (Table 17). The majority of this harvest (71 percent) occurred in the Alaskan subsistence fishery. The 1992 fall chum salmon harvest estimate was 64 percent below the recent five-year (1987 to 1991) average (Appendix F.3). The reduced harvest in 1992 was mainly due to the fact that there were no fall season commercial fisheries in the majority of the drainage.

6.4 *Coho Salmon*

It was estimated that a total of 61,588 coho salmon were harvested in the Yukon River drainage in 1992 (Table 17). Approximately 44 percent of this drainage harvest occurred in District 6, the Tanana River. The 1992 harvest was approximately half the recent five-year (1987 to 1991) average (Appendix F.4).

7.0 STATUS OF SALMON STOCKS

An essential requirement for responsible management of Yukon River salmon fisheries is annual documentation of spawning escapements. Such documentation provides for:

1. determination of appropriate escapement levels or goals for selected spawning areas or management units;

2. evaluation of escapement trends;

3. evaluation of effectiveness of the management program, which in turn forms the basis for proposing regulatory changes and management strategies; and

4. evaluation of stock status for use in projecting subsequent returns.

7.1 *Escapement Assessment Methods*

The Yukon River drainage is too extensive for complete comprehensive escapement coverage to all salmon spawning streams during any given season. Consequently, low-level aerial surveys from single-engine, fixed-wing aircraft form an integral component of the escapement assessment program. Nevertheless, comprehensive assessment studies, such as intensified ground surveys, mark-and-recovery programs, counting towers, weirs, and hydroacoustic projects are also conducted. Regardless of the method utilized, the overall objective of escapement assessment in the Yukon Area is to determine abundance (or often relative abundance), timing, and distribution of spawning salmon populations throughout the drainage. Specific objectives may vary by individual project, while individual projects may vary by year depending upon fiscal and personnel constraints.

There are both advantages and disadvantages related to each type of assessment method. The more comprehensive studies tend to provide estimates of total salmon abundance, and are often less dependent upon weather and water conditions. However, due to costs associated with manning and operating the more sophisticated projects, relatively few have been initiated over the years and have been restricted primarily to major spawning streams; for example, the Anvik, Andreafsky, Chandalar, Sheenjek, Chena, Salcha, and Delta Rivers in Alaska, and the Fishing Branch River and Whitehorse fishway in Canada.

Only during the past decade have attempts been made to estimate total salmon passage by species in the mainstem Yukon River. A department sonar project has been operational since 1986 on the Yukon River near Pilot Station (river mile 123). Hydroacoustic techniques to estimate the total number of fish passing upstream and comprehensive test drift gillnet fishing are conducted

to apportion sonar counts to species. A new project, jointly under development by USFWS and ADF&G, was initiated in 1992 at approximately river mile 1,200, near Eagle, Alaska.

In contrast to the more comprehensive enumeration programs, perhaps the greatest advantage of aerial surveys as they pertain to the Yukon River drainage is the cost-effectiveness of obtaining escapement information throughout an extremely vast area, most of which is remote. Another advantage to aerial surveillance is that real or potential habitat-related problems arising from natural or man-induced causes can be readily identified. Among the disadvantages are that results may be highly variable if non-standardized procedures are used.

Variability in aerial survey accuracy is dependent upon a number of factors such as weather and water conditions (turbidity), timing of surveys with respect to peak spawning, aircraft type, survey altitude, experience of both pilot and observer, and species of salmon being enumerated. It is generally recognized that aerial estimates are lower than actual stream abundance due to these factors. Further, peak spawning abundance measured by aerial survey methods is significantly lower than total season abundance due to the die-off of early spawners and arrival of late fish. Also, aerial estimates in a given stream may demonstrate a wide range in the proportion of fish being enumerated from year to year. However, peak aerial counts do serve either as indices of relative abundance for examining annual trends in escapement or as a basis from which to estimate total escapement using base year data and established expansion factors. Aerial survey results could also prove useful in apportioning mainstem total escapement estimates obtained from sonar, weir, or tower counts.

Aerial surveys are conducted of as many spawning streams as possible within the confines of fiscal, personnel, and weather constraints. However, selected (representative) spawning streams or "index areas" have been identified and receive highest priority. Index areas have been designated due to their importance as spawning areas and/or by their geographic location with respect to other unsurveyable salmon spawning streams in the general area.

The purpose of this developmental project is to determine feasibility of applying sonar techniques to obtain salmon passage estimates of the U.S./Canada border. Feasibility determination will be taken up by the Yukon River JTC after one or two more years of field work at this site. A mark-recovery project has been conducted by DFO since 1982 (except 1984) near Dawson City to estimate the number of chinook and fall chum salmon entering the Canadian Yukon mainstem.

7.2 *Escapement Goals*

Escapement goals have been established for several Yukon River salmon spawning streams or areas (Table 18). These goals represent the approximate minimum number of desired spawners considered necessary to maintain the historical yield from the stocks and are based upon historical performance; i.e., they are predicated upon some measure of historic averages. Establishment of escapement goals based upon rigorous analysis of maximum sustained yield (MSY) is not possible at this time due to the nature of the Yukon River mixed stock fisheries,

lack of stock identification data, and consequential inability to reconstruct total inriver stock-specific returns. Consequently, most escapement goals are based upon aerial survey index estimates which do not represent total escapement but do reflect annual spawner abundance when using standard survey methods under acceptable survey conditions. This is particularly true for those goals established for chinook and summer chum salmon. However, the goals which have been established for selected fall chum salmon spawning stocks represent the desired minimum target for total spawning abundance, being based upon a more comprehensive escapement data base.

In October 1992, ADF&G developed a formal salmon escapement goal policy. In addition to establishing definitions and criteria relating to escapement goals, the policy specified criteria and procedures for establishing and modifying escapement goals. The policy also set up a process to facilitate public review of allocative issues associated with establishment or modification of escapement goals.

7.3 *Escapement Results, 1992*

Among the more comprehensive escapement assessment studies conducted in 1992 to estimate total abundance of spawners, hydroacoustic techniques were employed to monitor chum salmon escapements to the Anvik and Sheenjek Rivers. Replicate ground surveys and stream life data were used to estimate abundance of chum salmon spawners in the Delta River, mark-and-recovery studies were conducted by the Sport Fish Division to generate population estimates for chinook and chum salmon spawners in both the Chena and Salcha Rivers.

Projects conducted by the Canadian DFO consisted of a mark-and-recovery project near Dawson to estimate the total number of mainstem Yukon River chinook and chum salmon passing the U.S./Canada border into Yukon Territory. Site-specific studies included an enumeration window and passage gate at the Whitehorse fishway to monitor chinook salmon escapement upstream of Whitehorse and operation of a counting fence (weir) on the Fishing Branch River (Porcupine River drainage) to enumerate chum salmon escapement.

Remaining escapement information throughout the Yukon River drainage in 1992 was obtained primarily by aerial and, occasionally, ground surveillance. In general, survey conditions were fair throughout most of the Alaskan portion of the drainage during the chinook and summer chum salmon survey season from mid-July through August, allowing for most major index areas to be successfully surveyed. Although few wildfires occurred throughout Interior Alaska in 1992, aerial surveillance was hindered in isolated portions of the drainage from rainfall. For example, runoff created turbidity problems in the Chena and Salcha Rivers during the period of peak chinook spawning in late July, thus hindering surveys to those major Tanana River tributary streams.

The 1992 season also marked the second consecutive year since statehood that the department did not conduct aerial escapement surveys for chinook salmon in the Canadian portion of the

drainage due to budget constraints. Escapement estimates to selected tributaries in that portion of the drainage are confined to observations made by DFO.

Early snowfalls and colder than normal temperatures to many parts of Interior Alaska during mid-September hindered aerial surveillance of several fall chum salmon index areas in 1992. No aerial surveys were attempted of the Sheenjek, Chandalar, or Black Rivers due to heavy ice floes in those rivers which had developed by late September. Further, aerial surveys to several fall chum and coho salmon spawning areas in the Tanana River drainage were hampered in October by icing conditions.

Escapement estimates obtained in 1992 are shown in Table 19, while Figures 13 through 17 show major Yukon River tributary systems.

7.3.1 Chinook Salmon

Appendices G.1 and G.2 present historic chinook salmon escapement data for selected streams during the period 1961-1992. Chinook salmon escapement goals established by the department for eight Alaskan streams, or index areas, are: East Fork (greater than 1,500) and West Fork (greater than 1,400) Andreafsky, Anvik (greater than 1,300 entire drainage or greater than 500 Yellow River to McDonald Creek), North Fork (greater than 500) and South Fork (greater than 800) Nulato, Gisasa (greater than 600), Chena (greater than 1,700), and Salcha (greater than 2,500) Rivers[1] (Table 18). These escapement goals are based upon aerial survey index counts which do not represent total escapement.

Although the mainstem Yukon River was ice free on June 3, ice remained along the coast of Norton Sound and the delta until June 10; much later than normal. Run timing of chinook salmon was approximately 10-12 days later than average. However, time of peak spawning in the various spawning areas was not judged to have been as comparatively late. Most fish apparently spawned soon after arrival to their natal streams.

Chinook salmon escapements were variable in 1992, with escapements at or near desired levels in the lower river but below desired levels for some of the stocks further upriver. Aerial surveys in the lower portion of the Yukon River drainage documented 1,030 chinook salmon (poor survey rating) in the East Fork, 2,002 (poor survey) in the West Fork Andreafsky River, and 931 (fair survey) in the Anvik River index area. Although no escapement goal exists for the Chulinak River, a total of 960 chinook salmon were counted in that drainage in late July.

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[1] These chinook salmon escapement goals resulted from a staff reevaluation of existing goals in March 1992. Although no escapement goals have been established for individual Canadian streams, an escapement goal of 33,000-43,000 chinook salmon spawners for the mainstem upper Yukon River drainage (Yukon Territory) was established by the JTC in March 1987. Additionally, a six-year stabilization plan, ending after the 1995 season, has been agreed upon by the U.S. and Canada. The goal of the plan is to stabilize the stock by achieving a spawning escapement of 18,000 or more chinook salmon for each year through 1995.

Aerial surveys flown of streams throughout the middle portion of the Yukon River drainage revealed variable chinook salmon spawning levels. While aerial counts of 348 and 231 chinook salmon in the North and South Fork Nulato River, respectively, were well below the desired level in each of these streams, the Gisasa River count of 910 chinook salmon indicated the goal was achieved there. Additionally, 187 and 69 chinook salmon, respectively, were observed in surveys of the Rodo and Tozitna Rivers. No escapement goals have been established for either of these rivers.

Observations on salmon spawning locations from surveys made in the upper Koyukuk River drainage resulted in several nominations to the state's *Catalog of Waters Important for Spawning, Rearing, and Migration of Anadromous Fish*. Chinook salmon was a new species nominated for addition to the John River, while the Iniakuk River (second order tributary of the Alatna River) was nominated to be added as an anadromous fish stream. Both chinook and chum salmon were observed spawning in that river in 1992. Finally, an extension to the range of chinook salmon spawning in the North Fork Koyukuk River was also documented and subsequently nominated for change. Although no escapement goals have been established for chinook salmon streams in the upper Koyukuk River drainage, spawning escapements were judged to have been good based upon the limited observations made in the Middle Fork Koyukuk (168 fish), South Fork Koyukuk (412), and Jim (179) Rivers. A total of 70 chinook salmon were observed in portions of the John (6 fish) and Alatna (64 fish) River drainages.

Inseason assessment of chinook salmon escapement to the Tanana River drainage in 1992 was made difficult by inclement weather and slightly turbid water conditions during the latter part of July and early August in the Chena and Salcha Rivers. Eight aerial surveys were attempted on each river between July 17 and August 11. The highest count on the Chena River was obtained on August 11, after the period of peak spawning, and only 825 chinook salmon were observed under poor to fair surveys conditions. A poor to fair survey of the Salcha River flown August 3 resulted in an estimate of 1,484 chinook salmon.

The department has conducted tagging studies on the Chena River since 1986, and on the Salcha River since 1987, to estimate chinook salmon escapement total population sizes. The estimates for 1992 are 5,230 chinook salmon for the Chena River and 7,862 chinook salmon for the Salcha River. These estimates compare to an average population estimate of approximately 5,000 for the Chena River and 5,800 for the Salcha River. Whereas less certainty can be placed upon whether or not the chinook salmon escapement goal was met in the Salcha River, it appears more apparent that the Chena River goal was not met.

Although considered "secondary" index streams, a poor survey of the Goodpaster River in 1992 documented at least 148 chinook salmon present, while only 79 were counted during a fair survey of the Chatanika River.

Surveillance of Yukon Territory chinook salmon spawning streams was made by DFO in 1992. Timing of surveys was delayed by approximately 1.5 weeks (August 27-29) due to the later than average run timing of chinook salmon in the Upper Yukon Area. Rivers surveyed included a

ground survey of Tatchun Creek and aerial surveys of Tincup Creek (Kluane River drainage), and the Little Salmon, Ross (Pelly River drainage), Big Salmon, Nisutlin and Wolf Rivers (Teslin River drainage). In brief, results indicated chinook salmon escapements in the Little Salmon, Ross, and Wolf Rivers were average to above average. Chinook salmon escapements to the other areas surveyed (Tatchun and Tincup Creeks, and the Big Salmon and mainstem Nisutlin Rivers) appeared to have been below average.

Unfortunately, as evidenced from a high percentage of carcasses, lone females, and vacant redds, surveys should have been conducted approximately one week earlier. It appears that, although timing of the chinook salmon run was late in the upper Yukon, actual time of spawning was not delayed.

The preliminary DFO mark-and-recovery population estimate of chinook salmon entering the Canadian portion of the mainstem Yukon in 1992 was 43,300. Subtracting the preliminary, estimated Canadian commercial and non-commercial harvest (18,941 excluding Old Crow) from this population estimate results in a total spawning escapement estimate to Yukon Territory (excluding the Porcupine River drainage) of approximately 24,359 chinook salmon. This was above the stabilization escapement goal of 18,000 chinook salmon, but below the escapement goal range of 33,000 to 43,000 chinook salmon.

The number of chinook salmon which returned to the Whitehorse fishway in 1992 totaled 758. However, at least 32 percent of the fish which returned were estimated as having been from previous hatchery releases. From the total chinook salmon returning to the fishway, 642 were passed upstream (including 43 males which were spawned once). The total number spawned for hatchery brood stock was 86 females and 73 males.

7.3.2 Summer Chum Salmon

Appendix G.3 presents historic summer chum salmon escapement data for selected streams during the period 1973-1992. Escapement goals for six major summer chum spawning streams in the lower Yukon River drainage are: East Fork (greater than 109,000) and West Fork (greater than 116,000) Andreafsky, Anvik (greater than 500,000), North Fork Nulato (greater than 53,000), and in the Hogatza (Clear Creek at greater than 8,000 and Caribou Creek at greater than 9,000) Rivers. An additional escapement goal of greater than 3,500 summer chum salmon exists for the Salcha River in the Tanana River drainage. With the exception of the Anvik River goal, which is a minimal goal of total spawning abundance, all other goals are based upon aerial survey observations during periods of peak spawning.

Summer chum salmon run timing in 1992 was also later than average and the run greatly overlapped with that of chinook salmon. The 1992 return of summer chums was expected to be below average to average in magnitude, with the Anvik River stock dominating the return.

Based upon escapement surveys, escapement goals were met in only one summer chum salmon stream throughout the entire drainage in 1992. This was in the Anvik River with a sonar-

estimated escapement in excess of 775,000 fish. Summer chum escapements to all remaining index streams were poor and below desired levels. Poor surveys of both the East Fork and West Fork Andreafsky Rivers resulted in estimates of only 11,308 and 37,808 chum salmon, respectively. The poor survey ratings were a result of large numbers of pink salmon observed in the lower one quarter of each river and excessive glare throughout most of the rivers. Nonetheless, these estimates suggest chum salmon escapements were well below respective escapement goals for these streams.

Similarly, the 12,358 summer chum salmon estimated on a fair survey of the North Fork Nulato River represents less than 25 percent of the escapement goal for that stream. Only 5,322 summer chum salmon were estimated in the South Fork Nulato River on the same date (no goal has yet been set for this river). Only 4,465 summer chum salmon were estimated in the Rodo River.

Summer chum salmon escapements in the Koyukuk River drainage were also below desired levels based upon aerial surveillance of selected streams. Although a total of 9,300 chum salmon were counted in the Gisasa River, escapement estimates in Clear and Caribou Creeks (Hogatza River drainage) totaled only 2,986 summer chum salmon; well below the combined goal to these two streams of greater than 17,000. Approximately 11,200 summer chum salmon were documented on a good survey of the Dakli River and Wheeler Creek, but less than 350 were counted on a good survey of the South Fork Koyukuk and Jim Rivers. As previously mentioned, the Iniakuk River (second order tributary of the Alatna River) was nominated for inclusion of the State's *Catalog of Waters Important for Spawning, Rearing, and Migration of Anadromous Fish*.

A 4-H educational program provided funding and supervision of students for a counting tower in the Kaltag River for the second consecutive year in 1992. An unexpanded tower count of 736 summer chum salmon and 17 chinook was obtained over a nine-day period from July 18 through July 26. The counting tower operation was primarily for educational purposes, and did not encompass the entire summer chum and chinook salmon runs.

The summer chum salmon return to the Tanana River was assessed as weak in 1992. The peak aerial survey count in the Salcha River was 3,222 chum salmon on August 11; falling slightly below the minimum goal of 3,500. Although no summer chum salmon escapement goal exists for the Chena River, a peak count of only 848 was obtained on August 11 in that river. Four potential ground index areas were identified in each of the Chena and Salcha Rivers in 1992 in an attempt to begin a ground survey data base for summer chum salmon. Summer chum salmon counts obtained in each of the ground index areas for these streams can be found in Appendix G.2. The cumulative ground count for the four Chena River ground index areas was 917, while the cumulative count for the four Salcha River ground index areas was 2,939 chum salmon.

Also in 1992, the Sport Fish Division made an attempt to estimate the total population of summer chum salmon spawners in both the Chena and Salcha Rivers using mark-and-recapture

techniques. Their total population estimates (preliminary) were 4,170 and 7,458 chum salmon, respectively, in the Chena and Salcha Rivers.

7.3.3 Fall Chum Salmon

Appendix G.4 presents historic fall chum salmon escapement data for selected streams since the early 1970s. The most complete data base on Yukon River fall chum salmon escapements dates back to the early 1970s and exists for four streams: Toklat, Delta, Sheenjek, and Fishing Branch Rivers. Escapement goals for these streams are greater than 11,000, greater than 33,000, greater than 64,000, and 50,000-120,000 fall chum salmon, respectively. These goals are of total abundance. In addition to estimates of total escapement to the above four streams, annual estimates of border passage and subsequent spawning escapement also exist for Canadian fall chum stocks in the upper mainstem Yukon River. The escapement goal for those stocks is greater than 80,000 fall chum salmon spawners (border passage less harvest).[2]

Overall, escapements were poor in 1992, with escapement goals being achieved in only one fall chum salmon stream, the Sheenjek River. Evaluation of escapements in the Porcupine River drainage was measured by observations made in the Sheenjek and Fishing Branch Rivers. The Sheenjek River project received additional funding in 1992 to initiate sonar operations approximately two weeks earlier than in previous years so as to include more of the fall chum migration into that river. The preliminary sonar estimated escapement for the period August 9 through September 19 was approximately 79,000 fall chum salmon. The Sheenjek River sonar project has historically operated for the period of approximately August 25 through September 24, and it is from sonar estimated passage during that time period that the Sheenjek River fall salmon chum escapement goal of greater than 64,000 is predicated. In 1992, approximately 14,000 fish were estimated passing the project site through August 24, with the balance of 65,000 passing subsequent to that date. This indicates that the escapement goal was achieved. Further, although unseasonably cold weather necessitated termination of the project on September 19 due to river icing conditions, fish were still passing the site at a rate of approximately 2,200 fish per day. By comparison, the Fishing Branch River minimum goal of 50,000 fish was not reached in 1992. Only 22,517 fall chum salmon were passed through the weir during the period August 29 through October 17; nearly 55 percent below the minimum goal.

Tanana River fall chum salmon escapement was evaluated by observations made in the Toklat and Delta River index areas. Escapement to the Toklat River in 1992 was estimated at approximately 10,800 fall chum salmon; the lowest estimated for this river since 1982 and the second lowest on record. It was 67 percent below the minimum escapement goal of 33,000 fish.

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[2]The U.S. and Canada have negotiated a 12-year rebuilding plan, beginning in 1990 and ending after the 2001 season, for Yukon River mainstem fall chum salmon in Canada. The objective of the plan is to rebuild the stock by achieving a spawning escapement of 80,000 or more fall chum salmon for all (four) brood years by the year 2001. The plan will endeavor to rebuild the stronger parent-years in four years (one cycle) and the weaker parent-years in twelve years (three cycles) in equal increments.

By comparison, the Delta River estimated fall chum salmon escapement was approximately 8,900 fish; being approximately 19 percent below its minimum goal of 11,000 fish. Although no escapement goals exist for other fall chum salmon spawning areas in the upper Tanana River, escapement counts during peak spawning were approximately 3,600 and 1,200 fish, respectively, to Bluff Cabin and Clearwater Lake Outlet Sloughs (Big Delta region). These numbers are more than 25 percent below the most recent 10-year average.

Due to the conservation concerns over the Toklat River fall chum salmon stock, the Board of Fisheries, in February 1992, continued a subsistence closure for fall chum salmon on the lower Kantishna River but made provisions for allowing coho salmon to be harvested via fish wheels equipped with live boxes. In a formal "finding," the board charged the Yukon River Drainage Fisheries Association (YRDFA) to work within its membership, Yukon River Advisory Committees, and the department to develop management options for rebuilding the depressed Toklat River fall chum stock while, at the same time, conserving and rebuilding other major fall chum stocks and minimizing the impact of management actions on subsistence and commercial fisheries.

Largely as a result of a preliminary comprehensive YRDFA proposal for rebuilding the Toklat River stock, 130,000 fall chum salmon eggs were collected from Toklat River chum salmon in 1992 as part of a pilot study. The fertilized eggs were transported to Clear Hatchery for genetic and disease screening and incubation. Resulting fry will be released back into the Toklat River in the spring of 1993 after being fin-clipped and marked with coded-wire nose tags.

The preliminary population estimate of fall chum salmon entering the Canadian portion of the upper Yukon River made by DFO in 1992 was 67,962 fish. Subtracting the preliminary estimated Canadian commercial and non-commercial harvest (21,190, excluding Old Crow) from this population estimate results in a total escapement estimate to Yukon Territory (excluding the Porcupine River drainage) of 46,772 spawners. This upper Yukon River spawning escapement estimate, as part of the twelve-year rebuilding plan for the weak 1988 brood year, is below the minimum 1992 targeted level of 51,000 fall chum salmon.

Among the aerial estimates made by DFO of fall chum salmon to selected spawning areas in the upper Yukon River were 3,339 in the Kluane River and 125 in the Donjek River (good surveys), 4,438 in the mainstem Yukon River, and 450 chums in the mainstem Teslin River near the confluence of Boswell Creek.

Preliminary fall chum salmon inriver commercial and subsistence harvest added to an estimated total spawning escapement (based upon a doubling of a standardized escapement index) results in a total run size estimate for 1992 of 453,000 fish, the smallest on record dating back to 1974. This measure of total return was 148,000 fish lower than the preseason projected return of 601,000. The poor escapements are particularly discouraging in view of the complete closure to commercial fishing during the fall season in Districts 1 through 5 and Subdistrict 6-A. However, based upon the estimated low percentage (39 percent) of age-4 fish which returned in 1992, production from the similarly cold winter of 1988-89 (the 1988 brood year) was

disastrous. In only one other year on record was the composition of age-4 fish similarly low; 34 percent in 1976. The estimated total return in that year was approximately 480,000 fall chums, the second lowest on record and very similar in magnitude to the 1992 return.

7.3.4 Coho Salmon

Comprehensive escapement information on Yukon River coho salmon is lacking, and spawning escapement requirements are not known. Assessment of escapements has been very limited throughout the drainage due to funding limitations and survey conditions at the time of year spawning occurs. In addition, there is no directed coho salmon commercial fishery; coho harvests being primarily a function of the management strategies (e.g., timing, frequency, and duration of fishing periods) employed to harvest the more numerous fall chum salmon. Thus, no coho salmon escapement goals have been established for any spawning stream within the drainage.

The best escapement information on Yukon River coho salmon exists in the Tanana River drainage, particularly for the Delta Clearwater River (DCR) and Clearwater Lake (Appendix G.5). Only escapements to selected spawning areas in the Tanana River drainage were examined in 1992.

The 1992 outlook was for an above average return of coho salmon based upon a subjective review of spawning escapements in 1988, the primary contributing brood year to the return. Based upon lower Yukon River test fishing data, 1992 coho salmon run timing was average, and the cumulative CPUE was the second largest on record through August 24 when test fishing was terminated. However, relative magnitude of the few Tanana River coho salmon escapements monitored was much poorer than expected. Only 3,963 coho salmon were counted during a boat survey of the DCR, the fewest observed since 1976. Although 500 coho were estimated present on an aerial survey of the Richardson Clearwater River, only 229 were observed on a boat survey of the outlet stream to Clearwater Lake, the lowest number on record.

Coho escapements in the Nenana River drainage also appeared lower than recent year levels based upon aerial observations made in the index areas of Lost Slough (372 fish) and Seventeen Mile Slough (490 fish). Similarly, observations made on escapements in the Toklat River (Kantishna River drainage) included 77 coho salmon on a foot survey of Geiger Creek and 55 on an aerial survey of upper Barton Creek.

In an attempt to garner more information on the distribution of coho salmon producing streams throughout the Yukon River drainage, fishermen were asked during subsistence surveys to identify streams in which they had observed coho salmon spawners in the past. In addition, the approximate number of fish and dates of observation were also solicited. Results are presented in Table 6.

7.4 *Selected Project Summaries*

This section provides an overview of results from selected projects conducted in 1992 which are not treated elsewhere in this report.

7.4.1 Lower Yukon Test Fishery

Two set and one drift gillnet test fishing projects were operated in the Lower Yukon Area to assess run timing and relative abundance of salmon entering the Yukon River. During the summer fishing season, which ended on July 15, test fishing projects targeted chinook and summer chum salmon. During the fall season, which usually ends on or about August 30, these projects targeted fall chum and coho salmon. The three test fishing projects in the Lower Yukon Area were: 1) Big Eddy Set Gillnet Test Fishing Project; 2) Middle Mouth Set Gillnet Test Fishing Project; and 3) Big Eddy Drift Gillnet Test Fishing Project. This latter test fish project was operated only during the summer fishing season.

Specific objectives of the lower Yukon test fish program were to determine run timing, distribution, age, sex, and relative abundance of chinook, summer chum, fall chum, and coho salmon returns in the lower Yukon River.

7.4.1.1. ***Summer Season.*** In 1992, test set gillnets for chinook and summer chum salmon were operated from June 8 to July 15. A total of 2,155 chinook were captured in combined 8.5 in mesh size test gillnets, while 890 chinook salmon were captured in combined 5.5 in mesh size test nets. Additionally, a total of 4,871 summer chum salmon were also captured in the combined 5.5 in mesh test nets.

Based on the 1992 cumulative 8.5 in mesh size test fish catch per unit effort (TFCPUE) of 24.29 chinook salmon caught per net per hour of fishing time, the chinook salmon run was judged to be above average in magnitude and very similar to the 1984 and 1985 returns. The 1980-1991 average chinook salmon TFCPUE for 8.5 in mesh test nets combined is 22.56. Chinook salmon test fish catches in 5.5 in mesh size set gillnets were about average in comparison to other years.

The summer chum salmon run was judged to be below average in magnitude in 1992 based on a cumulative TFCPUE of 59.05. Similar TFCPUE were observed in 1982 and 1987; years of below average summer chum salmon returns.

The drift gillnet test fishing project was operated only during the summer season. Since this component of the test fish program in the lower Yukon River operated only one month in 1992, data collected were not comparable to other years. A total of 563 chinook salmon were captured in drift nets resulting in a chinook salmon drift index of 1,037.5. Additionally, 1,755 summer chum salmon were also captured and resulted in a summer chum salmon drift index of 7,093.0. Run timing statistics derived from the drift gillnet project indicated that both the chinook and summer chum salmon runs were very late and compressed.

7.4.1.2. ***Fall Season.*** Given a preseason projection for a very poor fall chum return in 1992, TFCPUE was used as a management tool in determining if commercial fishing should be permitted during the fall season. The overall historical median day of passage (August 4) of fall chum salmon returns for years 1980-1991 and the median day of passage for associated odd- and even-year returns was selected as the trigger point. The expected CPUE on the median day of passage for an average fall chum salmon run was 11.65, half the total CPUE for years 1980-1991. Commercial fishing for fall chum salmon would be considered if a CPUE of 11.65 or greater was attained on or before August 4.

Total fall chum salmon TFCPUE at both Middle Mouth and Big Eddy test fish project sites in 1992 indicated a well below average return. Run timing statistics characterized the run as slow in developing, with the middle of the run being very compressed. Duration of passage of the middle of the run was the shortest on record for these test fishing sites. Although the actual median day of passage for the 1992 fall chum run was August 6, the TFCPUE on that day was well below the trigger point (11.65 CPUE). This information contributed to the decision to allow no commercial fishing in the Yukon River and the lower portion of the Tanana River during the fall season.

Although the entire coho salmon run is not monitored during test netting activities, it is believed the majority of the run is monitored. Thus, it is considered that strength of the run can be assessed in general terms and that assessment is comparable from year to year. In 1992, coho salmon combined TFCPUE results suggested above average run strength and associated timing statistics indicated run timing was average.

7.4.2 Upper Yukon Test Fishery

Two test fish wheel projects were operated in the Upper Yukon Area in 1992 to provide inseason data from which estimates of the Upper Yukon River fishery run timing and strength can be evaluated. One was located on the north bank of the lower Tanana River near Manley Hot Springs, and the other near Nenana on the north bank of the middle Tanana River. The Ruby test fish wheel, which monitored the fall chum salmon return along the north bank of the Yukon River approximately 20 miles above the village of Ruby from 1981-1991, was not operated in 1992 due to budget constraints.

In recent years, the department has adopted the objective of dramatically reducing the harvest of salmon from test fish wheels in the Tanana River. Both test wheels have a scheduled period of non-operation during mid to late August (in 1992, August 6 through August 20) during slow catch rate periods between returns of summer and fall chum salmon.

7.4.2.1. ***Manley Test Wheel.*** In 1992, the Manley test wheel operated a total of 70 days during the period between July 6 and September 26. The department installed a live box on the Manley test wheel this season that allowed fish to be counted by sex and species before being released unharmed. The purpose of the live box was to reduce overall Tanana River test fish harvest and sales of salmon, as well as provide protection for Toklat River fall chum salmon stocks which

are thought to be migrating through these fisheries during the late summer and fall months. There were no sales of salmon from the Manley test wheel in 1992.

A cumulative total of 896 chinook, 2,008 summer chum, 2,931 fall chum, and 549 coho salmon were estimated to have passed through the Manley test fish wheel in 1992. Records on species composition included small and large chinook salmon. The cumulative total represents fish that were returned unharmed to the Tanana River as well as those retained for subsistence purposes by the fish wheel operator during open subsistence fishing periods.

7.4.2.2. ***Nenana Test Wheel.*** The Nenana test wheel project operated a total of 54 days during the period July 9 through September 25. The test wheel operated on an every-other-day basis during closures of the commercial and subsistence fishing periods. Due to growing concerns over strength of the Tanana River chinook salmon return, the test fish wheel suspended operations for a short period (July 25 to August 4) during the early fishing season.

The 1992 estimated cumulative total number of salmon captured by the Nenana test wheel was 551 chinook, 699 summer chum, 4,161 fall chum, and 4,014 coho salmon. These cumulative estimates were derived from extrapolation of the contractor's every-other-day test wheel catch reports, commercial test wheel fish ticket sales, and salmon retained for subsistence purposes.

7.4.3 Salmon Escapement Sampling

Various chinook, summer and fall chum, and coho salmon stocks were sampled for age-sex-length information from selected salmon spawning tributaries in the Alaskan portion of the Yukon River drainage in 1992 (Appendix G.6). Tributaries from which escapement sampling for age-sex-size occurred included the East and West Fork Andreafsky River, Anvik River mainstem and selected tributary streams, Chena River, Salcha River, Goodpaster River, Sheenjek River, Toklat River, Delta River, Bluff Cabin Slough, mainstem Tanana River, and Delta Clearwater River.

Additionally, the USFWS sampled various summer and fall chum salmon spawning tributaries during 1992 for genetic stock identification tissue samples. Unfortunately, sex, size, and age information was not collected. Streams sampled by country were as follows: in Alaska - Kaltag Creek, Dakli River, and Tozitna River; in Canada - Fishing Branch, Teslin River, Big Creek, Minto, Tatchun Creek, and Kluane River. These samples, when analyzed, will be added to the Yukon River chum salmon genetic stock identification baseline.

7.4.4 Test Fish Sampling

Age-6 chinook salmon dominated the Big Eddy and Middle Mouth test fish samples. Chinook salmon sampled from 8.5 in mesh test gillnets accounted for over 80 percent of the sample at these two project sites. Female salmon dominated every sampling stratum.

Age-5 summer chum salmon dominated the test fish catch during every time stratum, ranging from 63.6 percent to 83.4 percent at the Big Eddy test fish project site, and 56.7 percent to 85.1 percent at the Middle Mouth test fish project site. As for chinook salmon, female summer chum salmon dominated every sampling stratum.

Age-5 salmon dominated the fall chum test fish catch during every time stratum at the Big Eddy test fish project site, ranging from 68.8 percent to 81.6 percent, but only dominated one of the three time strata at the Middle Mouth test fish project site. Female chum salmon dominated every sampling stratum during the fall season.

Age-4 coho salmon dominated the test fish catch during every sampling stratum, ranging from 71.2 percent to 80.9 percent at both test fish project sites. Female coho salmon accounted for 45.4 percent of the total test fish sample.

7.4.5 Alaskan Commercial and Subsistence Salmon Catch Sampling

Commercial and/or subsistence fishery catch sampling was conducted at Emmonak, Mt. Village, Galena, Rampart, Nenana, and Fairbanks by ADF&G staff during the 1992 fishing season. Additionally, stock identification sampling was conducted at Tanana by USFWS personnel. Specific objectives of the catch sampling program were to: 1) determine the age, sex, and length composition of commercial and subsistence harvests by species; 2) provide scale samples of chinook salmon to the stock identification research project for catch allocation to stock of origin based on scale patterns analysis; and 3) determine composition and timing of stocks in the Subdistrict 5-A and 5-B subsistence fisheries during the fall fishing season.

7.4.5.1. ***Age, Sex, and Size Composition.*** Commercial fishery catch samples were obtained from all Yukon Area district harvests except from District 3. Pooled subsistence and commercial catch samples were obtained from Districts 4, 5, and 6 fisheries. Additionally, gillnet and fish wheel catch samples obtained from Districts 4 and 6 were also pooled.

Age-6 chinook salmon dominated the commercial catch in the Lower Yukon Area, accounting for 73.3 percent of the sample in District 1 and 79.8 percent of the sample in District 2. The pooled commercial and subsistence sample in District 4 consisted of near-even-percentages of ages 4, 5, and 6 chinook salmon. Age-6 chinook salmon dominated the sample in the District 5 sample, accounting for 61.0 percent of the sample, while age-4 dominated the District 6 pooled sample, accounting for 52.0 percent of the sample.

Similar to the test fish results, the commercial harvest in the Lower Yukon Area of summer chum salmon was dominated by age-5 salmon. This age class accounted for 73.5 percent of the sample in District 1 and 80.3 percent of the sample in District 2. However, only commercial harvests using unrestricted mesh gillnets were sampled in District 2. Overall male:female sex ratio of the sampled salmon in each district was nearly equal. Pooled commercial and subsistence fishery samples in District 4 was likewise dominated by age-5 salmon. Contributions of this age class were nearly identical in gillnet and fish wheel catch samples. Female salmon

also dominated samples obtained from each gear type, accounting for 71.8 percent in gillnet samples and 63.6 percent in fish wheel samples. Likewise, age-5 summer chum salmon dominated the catch in District 5 pooled commercial and subsistence samples. However, male salmon contributed 58.3 percent to the total sample. Unlike any other test fish, fishery, or escapement sample, age-4 summer chum salmon dominated the pooled catch sample in District 6, accounting for 61.2 percent of the sample. This apparent anomaly may be explained by errors made in ageing badly reabsorbed summer chum salmon scales in this sample.

Because a commercial fishery for fall chum salmon was not conducted during 1992 in most of the Alaskan portion of the drainage, fall chum and coho samples from harvests were limited to fall chum subsistence harvests in District 5 and fall chum and coho commercial and subsistence harvests in District 6. Age-4 and age-5 fall chum salmon contributed nearly equally to the subsistence harvest sample in District 5, as well as the pooled commercial and subsistence harvest in District 6. The male:female sex ratio was nearly equal in the District 5 sample, while female salmon dominated the District 6 sample. This apparent anomaly in strength of the age-4 component may be explained by errors made in ageing badly reabsorbed fall chum salmon scales in these samples. Age-4 male coho salmon dominated the catch sample in the pooled District 6 catch sample.

7.4.5.2. ***Scale Pattern Analysis (SPA).*** Analysis of scale patterns and age composition of chinook salmon from Yukon River escapements in Alaska and salmon tagging study catches in Canada were used to construct run-of-origin classification models for allocating Yukon River Districts 1, 2, 3, and 4 commercial and subsistence harvests. Linear discriminant models were used to estimate stock composition for age-1.4 salmon. Observed age composition differences among escapements were used to estimate run of origin for other age groups. Run of origin for all other drainage harvests was estimated from geographic occurrence. Results of these analyses are not yet available.

7.4.5.3. ***Genetic Stock Identification (GSI).*** The USFWS collected 2,326 fall chum salmon scale and tissue samples from subsistence fish wheel catches near the village of Tanana on the Yukon River. Daily sampling was conducted on both banks on August 4 through September 23, 1992. Neither age-sex-size nor stock identification information is available at this time.

8.0 HERRING FISHERY

Pacific herring (*Clupea harengus pallasi*) are present in coastal waters of the Yukon Area during May and June. Spawning populations occur primarily in the Cape Romanzof area in Kokechik Bay and Scammon Bay (Appendix H.1) where suitable spawning habitat consisting of rocky beaches and rockweed (*Fucus*) is available. The arrival of herring on the spawning grounds is greatly influenced by ocean water temperature and ice conditions. Typically, herring appear immediately after ice breakup, and spawning usually occurs between mid-May and mid-June.

Herring are utilized by local residents for subsistence purposes. In addition, a commercial herring sac-roe fishery has occurred in the Cape Romanzof District since 1980. The Cape Romanzof District consists of all state waters from Dall Point to 62 degrees north latitude (Appendix H.1). In 1982, the Board of Fisheries reduced the area open to commercial fishing by closing the waters outside of Kokechik Bay. Gillnets are the only legal gear type. The use of mechanical shakers has been prohibited since 1988. Limited entry to the fishery began with a moratorium of new entrants in 1988. Eventually, the fishery will be limited to 101 permits.

8.1 *Subsistence Fishery, 1992*

A subsistence harvest estimate of 4 st of herring was reported to have been taken by 30 fishing families from Hooper Bay, Chevak, and Scammon Bay (Appendix H.7). The subsistence harvest survey was conducted through the mail by a catch questionnaire. About 34 percent of the 208 questionnaires mailed out were returned. The subsistence catch figures represent only the harvest which was reported. Therefore, the reported catch is a minimum estimate since not all families were mailed questionnaires and not all families which received questionnaires returned them. Additionally, herring spawn-on-kelp was harvested for subsistence purposes; however, the quantity taken was not documented. A majority of the fishermen that responded to questionnaires reported more herring were present during 1992 than in 1991.

Three fishermen reported subsistence catches of herring near the Yukon River mouth during 1992. Sexually mature herring were caught between June 13 and June 16 near Black River and Kwiguk Pass.

8.2 *Commercial Fishery, 1992*

A total of 529.7 short tons (st) of herring were harvested in 1992 by 73 fishermen utilizing 73 fishing vessels (Appendix H.2). Approximately 515.8 st were purchased as sac roe and 13.9 st were purchased as bait herring. The average sac roe recovery was 8.03 percent. The commercial fishing season consisted of a 2-hour period on June 9 and a 4-hour period on June 11-12 established by emergency order (Appendix H.3) for a total fishing time of six hours. No wastage was documented.

The harvest of 529.7 st in 1992 was approximately 38 percent below the recent five-year average catch of 848 st (Appendix H.4). Commercial harvests increased steadily after inception of the fishery in 1980, reaching a peak harvest of 1,865 st in 1986. Since 1986, there has been a trend of decreasing harvests.

Estimated value of the 1992 harvest to fishermen was $159,000. Average price for herring sac roe was $383 per st at 10 percent roe recovery, plus or minus $38.00 a percentage point. The average price for bait herring (less than 7 percent roe) was $50 per st. Two companies, represented by one processing vessel and five tenders purchased herring during the fishery (Appendix H.5).

Fishing effort in 1992 (73 fishermen) was the lowest recorded since 1985, and was 9 percent below the 1991 effort level. Effort has decreased due to implementation of limited entry as well as lower preseason harvest projections. Local Alaskan residents (defined as residents of Chevak, Hooper Bay, and Scammon Bay) accounted for 97 percent (71 permits) of the effort and 96 percent (508.9 st) of the harvest.

The preseason harvest projection was 405 st. However, since there was no indication inseason that the biomass had decreased from the preceding year, the commercial fishery was managed to achieve a harvest similar to the 1991 season. Fishing gear was restricted to one 50-fathom gillnet per vessel throughout the commercial season. A countdown was provided to fishermen prior to the opening and closing of periods on VHF radio. The first commercial fishing period was opened at approximately high tide, and the second period was opened approximately two hours prior to high tide.

In coordination with the department, commercial fishermen provided test catch samples for evaluation by industry representatives prior to commercial periods. Samples were collected early in the incoming tide to provide time for scheduling beach parties and announcing periods. As in other recent years, the fishery was put on a one-hour advance notice prior to opening the commercial fishery. Industry evaluation of department test fish catches in the morning on June 9 indicated a high percentage of males and low roe recovery (Appendix H.6). Samples obtained in advance of the first opening in the evening on June 9 showed a relatively high roe recovery and a higher percentage of females than samples collected in the morning, particularly in 3 1/8 in mesh size catches. Samples collected prior to the second opening showed an increase in percentage of ripe herring and a higher roe recovery.

The roe recovery from both commercial periods was disappointing. Only 7.07 percent roe recovery was reported for the first period and 8.36 percent for the second period. A high percentage of males (64 percent) was observed during the first period as indicated by commercial catch samples. Buyers reported better roe recovery during the first half compared to the second half of the second period. However, deliveries at the end of the period from two miles north of the department's field camp were of high roe recovery.

Commercial test samples evaluated by industry technicians (Appendix H.6) suggested that larger mesh sizes usually resulted in higher percentages of females and better roe recovery, while smaller mesh size catches generally had higher percentages of males. In addition, roe recovery appeared to be higher from catches inshore than offshore.

The overall exploitation rate of herring was estimated postseason to be approximately 11.8 percent of the available biomass (Appendix H.4). A total of 424 herring were sampled from the commercial harvest. Samples were collected from 2-3/4 in, 2-7/8 in and 3 in mesh size gillnets. The estimated age composition of the commercial samples based on scale analysis was: age-6: 1.0 percent; age-7: 1.0 percent; age-8: 27.7 percent; age-9: 17.5 percent; age-10: 17.5 percent; age-11: 16.7 percent; and age-12 and older: 18.6 percent (Appendix H.9). Sample data suggested that larger mesh sizes usually resulted in higher percentages of females and better roe recovery while smaller mesh size catches generally had higher percentages of males.

One Fish and Wildlife Protection Officer was present at Cape Romanzof during the 1992 commercial herring fishing season. The test fishing boat and a boat operator were provided by ADF&G, so the officer could patrol the fishery. A total of three commercial fishing citations were issued. Two citations were issued for fishing without a crew member license and one was issued for not having photo identification. No herring were confiscated.

8.3 *Stock Status*

Seven aerial surveys were flown during the 1992 season from June 5 through June 18 (Appendix H.8). A total of 2.9 hours were spent surveying the district. A majority of the surveys were unacceptable due to poor weather and turbid water conditions. A survey flown on June 11 under poor conditions documented a herring biomass of 1,292 st. The peak biomass of 3,898 st was documented on June 16. A very large school was observed during this survey in Kokechik Bay; however, the school was not very dense as the water depth was estimated to be less than 2 meters. A conversion factor of only 0.1 st per 538 ft of surface area was used to estimate the biomass of this school. Observations made during a hike along the mountains near the cape earlier in the season on June 6 revealed that large, thin schools were present in Kokechik Bay; however, these schools would be difficult to see except under calm winds and direct sunlight.

Test fishing with variable mesh gillnets has been conducted since 1978 to determine distribution, timing, and relative abundance of spawning herring, and to collect samples for age, sex, size, and relative maturity information. In 1992, test fishing occurred from June 4 to June 17. A total of 1,696 herring were caught, of which 1,062 were sampled for biological data. Herring comprised approximately 98 percent of the total catch of schooling species. Other fish captured during test fishing, primarily during the later portion of the project, were yellowfin sole, flounder, saffron cod, sculpin, and whitefish. A dip net sample of 36 herring was obtained from the beach in front of the department's field camp on June 5.

Age-9 and older herring comprised 62.8 percent of the variable mesh test gillnet samples. Age-5, 6, 7, and 8 Pacific herring accounted for 4.6 percent, 4.7 percent, 2.0 percent and 19.3 percent of test fishing samples, respectively. Newly recruited age-3 and 4 herring represented 0.0 percent and 6.4 percent of test fishing samples. Due to the late arrival of herring, younger aged fish may have arrived after termination of the department's test fishing project.

The herring spawning biomass estimate based on aerial surveys was 4,428 st. This estimate was obtained by combining the biomass estimate obtained on June 16 with the commercial harvest. Postseason analysis of age composition data, spawn deposition surveys, and TFCPUE indicated the 1992 biomass was similar to the 1990 and 1991 seasons. The 1992 biomass was therefore estimated to be approximately 4,500 st. The overall exploitation rate was estimated to be 11.8 percent. There is concern that age-8 and older herring dominated test fishing and commercial catch samples in 1992 and a general trend of older age fish in the population during recent years (Appendices H.9 through H.12).

Qualitative spawn deposition surveys have been conducted annually to document spawn distribution and average number of egg layers deposited. In 1992, daily spawn deposition surveys began on June 1. On June 5, the first observation of spawning was recorded. A gradual increase in spawn deposition followed, both in layers of eggs and distribution. Spawn deposition on *Fucus* substrate peaked approximately June 12, with an average of 2 to 4 egg layers depending on location. Spawn deposition on rock substrate peaked on June 12, with an average of 1 to 4.3 egg layers. The last survey was conducted on June 17.

Given the difficulty of observing herring during aerial surveys, the department conducted further studies in 1992 to develop a spawn deposition index. The major difficulty observed in attempting to estimate biomass utilizing spawn deposition data in the past was the loss of spawn due to storms and desiccation. To address this problem, artificial substrates were located in intertidal spawning areas in 1992. The artificial substrate consisted of small steel platforms with 6 in by 12 in rectangular pieces of astroturf attached to a steel plate on each platform. Spawn deposited on the astroturf was removed and weighed daily at low tide. Daily removal of spawn allowed measurements of new spawn deposition and decreased the problem of spawn loss due to wave action and desiccation observed in previous studies.

Twenty-five platforms were placed just north of the department's field camp on June 5. The study area was extended by an additional 25 platforms on June 7. The results indicated that the largest spawn deposition occurred on June 6, 9, and 14 within the study area. Hopefully, the spawn deposition index obtained this year can be used for comparative purposes in the future.

8.4 *Outlook for 1993*

The projected return for 1993, based upon limited information, is 2,449 st. The Bering Sea Herring management strategy is to harvest 0-20 percent of the estimated herring biomass. Since the stock appears to be exhibiting a trend of decreasing abundance with the majority of fish being older age, a 15 percent exploitation rate will be used to manage the fishery in 1993. The harvest projection is 367 st.

Emergency order authority will be used to adjust the occurrence and length of fishing periods. It is very likely that gear will be restricted to one 50 fathom gillnet per vessel. A minimum level of biomass cannot be used to determine the opening of commercial fishing periods since

turbid water conditions usually preclude aerial biomass assessments. Therefore, test and commercial catch rates and spawn deposition observations will be used to determine timing and duration of commercial fishing periods. The initial commercial fishing period will be established when it is determined that commercial quantities of marketable sac roe herring are present on the grounds. Beach meetings will be utilized to judge roe quality. Additional fishing periods may be established depending on total harvest to date and assessment of herring abundance through aerial surveys (if possible), cumulative spawn deposition, test and commercial catch rates, and age composition data.

9.0 FRESHWATER FINFISH FISHERY

Several species other than salmon and herring are used for commercial, personal use, and subsistence purposes in the Yukon Area. They include sheefish *Stenodus leucichthys*, whitefish *Coreqonus* spp. and *Prosopium* sp, char *Salvelinus* sp, burbot *Lota lota*, Arctic grayling *Thymallus arcticus*, northern pike *Esox lucius*, Arctic lamprey *Lamperta japonica*, rainbow smelt *Osmerus mordax*, blackfish *Dallia pectoralis*, and longnose sucker *Catostomus*.

9.1 *Subsistence Fishery*

Many subsistence fishermen operate gillnets in the main rivers and coastal marine waters to harvest marine and freshwater finfish other than salmon and herring. A limited number of sheefish are harvested during late May and early June in the Lower Yukon River as sheefish migrate upriver. The sheefish migration occurs just prior to and during the beginning of the upstream migration of chinook salmon. Fish wheels take relatively small numbers of whitefish and sheefish in the upper Yukon and Tanana Rivers during the commercial salmon fishery. Beach seines are occasionally used near spawning grounds, capturing primarily salmon or other schooling species of fish. Traps and fish weirs of various designs are also used, mainly in the fall and winter months, to capture whitefish, blackfish, and burbot. Sheefish, pike, char, and "tomcod" (saffron cod) are frequently taken through the ice by hand lines. Dip nets are used in late May to early June to take smelt in the delta area, and in late October to early November to take lamprey in the main Yukon River downstream of Grayling.

Subsistence fisheries which target non-salmon species such as pike, sheefish, and whitefish are inadequately documented, and their overall significance is not well known. The most recent, comprehensive subsistence use survey was conducted in the lower Yukon River in 1977-1978 (Crawford 1978). Several studies have been conducted to investigate sheefish migrations and to locate spawning areas in the Koyukuk River drainage (Alt 1968, 1969, 1970, 1974) and in the main Yukon River between Steven's Village and Fort Yukon (Alt 1986).

9.2 *Commercial Fishery*

Regulations adopted by the Board of Fisheries allow ADF&G to issue permits for the directed commercial harvest of marine or freshwater species other than salmon or herring. The commercial sale of whitefish also occurred incidentally during Upper Yukon Area commercial salmon fishing periods. Salmon permit holders are not required to have special permit authorization to sell freshwater species of fish if they are taken incidentally while commercial salmon fishing. In the Upper Yukon Area, fishermen sold an estimated 3,414 whitefish in the round in 1992 during salmon fishing periods: District 4 fishermen sold 2,635 whitefish in the round at 2,455 pounds; District 5 fishermen sold 580 whitefish in the round at 1,379 pounds; and District 6 fishermen sold 199 whitefish in the round at 499 pounds. In 1992, two Freshwater Commercial Fishery informational packets were sent to interested fishermen; however the applications were never filed and no permits were issued. In 1992, no freshwater commercial fishery (non-salmon) occurred.

Directed commercial fisheries for species other than salmon have been allowed in widely scattered locations throughout the Yukon River drainage. Most of these fisheries are limited, experimental operations, and occur only sporadically.

Permits for the taking of non-salmon species have been issued in recent years for various locations in the Lower Yukon Area. Reported harvests for those fisheries are presented in Appendix I.1. One permit was issued in 1992, and a total of 95 whitefish were sold at $1.00 per pound. The harvest was taken from September 4 through September 15. Set gillnets are primarily used for taking whitefish and sheefish in the Lower Yukon Area. Typically, the catch is marketed in local village stores.

In the Upper Yukon Area, set net fisheries targeting on whitefish have been permitted in recent years in Lake Minchumina and Healy Lake (Appendix I.2). No permits were issued for the Tanana River drainage in 1992. Numerous other permits allowing limited harvests of whitefish, primarily in the Upper Yukon Area, have been issued. In most cases, commercial harvests have not occurred.

9.3 *Status of the Stocks*

The Division of Commercial Fisheries does not monitor the status of the marine or freshwater finfish species other than salmon or herring in the Yukon Area. Limited department observations, advisory committee recommendations, and fishermen interviews give no indication of declining populations in most drainages.

9.4 *Colville River Commercial Fishery*

A commercial fishery for whitefish has existed in the Colville River since 1964 (Appendix I.3). The mouth of the Colville River empties into the Beaufort Sea approximately 60 miles west of Prudhoe Bay. Although not part of the Yukon River drainage, this fishery has been managed by the Fairbanks office since it was started. Similar to past practices, harvest information is reported in the Yukon Area Annual Management Report series. Fishing generally takes place during late June and July for broad and humpback whitefish, and October through early December for Arctic and least cisco. Set gillnets of 3 and 5 in mesh are used under the ice.

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Table 1. Yukon River drainage mileages.

Location	Mileage from Mouth
NORTH MOUTH (APOON PASS)	
Kotlik	6
Hamilton	26
MIDDLE MOUTH (KWIKPAK,KAWANAK PASS)	
Choolunawick	16
Akers Camp	26
New Hamilton	34
SOUTH MOUTH (KWIKLUAK PASS)	
Mouth, Black River	-18
Flat Island	0
Sheldon Point	5
Tin Can Point	8
Alakanuk	17
Emmonak-Kwiguk (Kwiguk Pass)	24
Sunshine Bay	24
Aproka Pass (upstream mouth)	35
Kwikpak Pass (upstream mouth)	44
Head of Passes	48
Fish Village	52
Mouth, Anuk River	63
(District 1/2 Boundary)	
Patsys Cabin	71
Mountain Village	87
Old Andreafsky	97
Pitkas Point	103
Mouth, Andreafsky River	104
St. Marys	107
Pilot Station	122
Mouth, Atcheulinguk (Chulinak) River	126
Pilot Village	138
Marshall (Fortuna Ledge)	161
Upstream Mouth Owl Slough	163
Ingrihak	170
Ohogamuit	185
Toklik	191
(District 2/3 Boundary)	
Kakamut	193
Russian Mission	213
Dogfish Villaage	227
Paimuit	251
Mouth, Innoko River (South Slough)	274
Shageluk	328
Holikachuk	383
Holy Cross	279
Mouth, Koserefski River	286
Old Paradise Village	301
(District 3/4 Boundary)	
Mouth, Bonasila River	306
Anvik	317
Mouth, Anvik River	318
Grayling	36
Mouth, Thompson Creek	349
Blackburn	370
Eagle Slide	402
Mouth, Rodo River	447
Kaltag	450
Mouth, Nulato River	483
Nulato	484
Koyukuk	502
Mouth, Koyukuk River	508
Mouth, Gisasa River	564
Huslia	711
Mouth, Dakli River	755
Mouth, Hogatza River	780
Hughes	881
Mouth, Kanuti River	935
Alatna (Mouth, Alatna R.)	956
Allakaket	956
Mouth, South Fork	986
Mouth, John River	1,117
Bettles	1,121
Middle Fork	1,141
Cold Foot	1,174
Wiseman	1,186
Bishop Rock	514
Prospect Point	519
Galena	530
Whiskey Creek	555
Mouth, Yuki River	562
Ruby	581
Mouth, Melozitna River	583
Horner Hot Springs	605
Kokrines	608
Mouth, Nowitna River	612
Birches	647
Kallands-Mouth of Illinois Creek	664
(District 4/5 Boundary)	
Mouth, Tozitna River	681
Tanana Village	695
Mouth, Tanana River	695
(District 5/6 Boundary)	
Manley Hot Springs	765
Mouth, Kantishna River	793
Mouth, Toklat River	838
Mouth, Sushana R.	850
Mouth, Bearpaw River	887
Outlet, L. Minchumina	959
Minto	835
Nenana	860
Mouth, Nenana River	860
Mouth, Wood River	894
Rosie Creek Bluffs	912

Table 1. (continuation page 2 of 2)

Location	Mileage from Mouth
Mouth, Chena R. (Fairbanks)	920
Mouth, Salcha River	965
Benchmark #735 Slough	991
Mouth, Little Delta R.	1,000
Mouth, Delta Creek	1,014
Mouth, Clear Creek (Richardson-Clearwater)	1,015
Mouth, Shaw Creek	1,021
Mouth, Delta River (Big Delta)	1,031
Delta Junction	1,041
Mouth, Goodpaster River	1,049
Bluff Cabin Slough	1,050
Outlet, Clearwater Lake	1,052
Outlet, Clearwater Crk (Delta Clearwater)	1,053
Mouth, Gerstle River	1,059
Outlet, Healy Lake	1,071
Outlet, Lake George	1,086
Tanacross	1,128
Outlet, Tetlin Lake	1,188
Mouth, Nabesna River	1,210
Northway Junction	1,214
Mouth, Chisana River	1,215
Mouth, Sheep Creek	1,297
Rampart Rapids	731
Rampart	763
Mouth, Hess Creek	789
Mouth, Ray River	817
Highway Bridge - Pipeline Crossing	820
Mouth, Dall River	841
Stevens Village	847
Mouth, Hodzana River	897
Beaver	932
Mouth Hadweenzic River	952
Mouth, Chandalar River (Venetie Landing)	982
Venetie	1,025
Fort Yukon	1,002
Mouth, Porcupine River	1,002
Mouth, Black River	1,026
Chalkyitsik	1,084
Mouth, Salmon Fork R.	1,142
Mouth, Sheenjek River	1,054
Mouth, Coleen River	1,157
Mouth, Salmon Trout R.	1,193
U.S. - Canadian Border	1,219
Old Crow	1,259
Fishing Branch R. spawning area	1,600
Circle	1,061
Woodchopper	1,110
Mouth, Charley River	1,124
Mouth, Kandik River	1,135
Mouth, Nation River	1,166
Mouth, Tatonduk River	1,186
Mouth, Seventymile River	1,194
Eagle	1,213
U.S.-Canadian border	1,224
Mouth, Fortymile River	1,269
Dawson	1,319
Mouth, Klondike River	1,320
Mouth, Sixty Mile River	1,369
Mouth, Stewart River	1,375
McQuesten	1,455
Stewart Crossing	1,491
Mayo	1,520
Mouth, Hess River	1,594
Mouth, White River	1,386
Mouth, Donjek River	1,455
Mouth Kluane River	1,541
Outlet Kluane L.	1,587
Burwash Landing	1,595
Kluane	1,625
Fort Selkirk	1,477
Mouth, Pelly River	1,478
Pelly Crossing	1,410
Mouth, MacMillan River	1,442
Ross River	1,602
Minto	1,499
Mouth Tatchun Creek	1,530
Carmacks	1,547
Mouth, Little Salmon River	1,583
Mouth, Big Salmon River	1,621
Mouth, N. Big Salmon R.	1,641
Mouth, S. Big Salmon R.	1,657
Outlet, Big Salmon Lake	1,714
Mouth, Teslin River	1,654
Roaring Bull Rapids	1,707
Johnson's Crossing (Outlet, Teslin L.)	1,756
Teslin	1,780
Mouth Nisutlin River	1,788
Mouth, Sidney Creek	1,837
Mouth, Hundred Mi. Creek	1,851
Mouth, NcNeil River	1,887
Outlet, Nisutlin Lake	1,892
Outlet, Lake Laberge	1,679
Inlet, Lake Laberge	1,712
Mouth, Takhini River	1,718
Whitehorse	1,745
Outlet, Marsh Lake	1,764
Mouth, M'Clintock River	1,769
Outlet, Little Atlin L.	1,788
Outlet, Atlin Lake	1,812
Atlin	1,844
Tagish	1,786
Outlet, Tagish Lake	1,788
Carcross (Outlet L.Bennett)	1,810
Bennett	1,835

Table 2. Fish species commonly found in the Yukon Area[a].

Species Code[b]	Genus and Species	Common Name
113	*Eleginus gracilis*	Saffron Cod
129	*Platichthys stellatus*	Starry Flounder
162	*Cottus cognatus*	Slimy Sculpin
230	*Clupea pallasi*	Pacific Herring
410	*Oncorhynchus tshawytscha*	Chinook Salmon
420	*Onchorhynchus nerka*	Sockeye Salmon
430	*Onchorhynchus kisutch*	Coho Salmon
440	*Onchorhynchus gorbuscha*	Pink Salmon
450	*Onchorhynchus keta*	Chum Salmon
500	*Esox lucius*	Northern Pike
513	*Osmerus mordax*	Rainbow Smelt
514	*Hypomesus olidus*	Pond Smelt
516	*Mallotus villosus*	Capelin
520	*Salvelinus alpinus*	Arctic Char
530	*Salvelinus malma*	Dolly Varden
541	*Onchorhynchus mykiss*	Rainbow Trout (Stocked)
550	*Salvelinus namaycush*	Lake Trout
570	*Stenodus leucichthys*	Inconnu (Sheefish)
583	*Coregonus sardinella*	Least Cisco
585	*Coregonus laurettae*	Bering Cisco
586	*Prosopium laurettae*	Round Whitefish
587	*Prosopium coulteri*	Pygmy Whitefish
588	*Coregonus nasus*	Broad Whitefish
589	*Coregonus pidschian*	Humpback Whitefish
590	*Lota lota*	Burbot
601	*Lampetra japonica*	Arctic Lamprey
610	*Thymallus arcticus*	Arctic Grayling
630	*Dallia pectoralis*	Alaska Blackfish
640	*Catostomus catostomus*	Longnose Sucker
650	*Couesius plumbeus*	Lake Chub
661	*Pungitius pungitius*	Ninespine Stickleback
670	*Percopsis omiscomaycus*	Trout Perch
NA	*Liopsetta glacialis*	Arctic Flounder

[a] Based on American Fisheries Society Special Publication No. 20, Common and Scientific Names of Fishes from the United States and Canada (Fifth Edition). Committee and Names of Fishes, Bethesda, Maryland, 1991.

[b] The specie code is a three-digit number that identifies the type of fish caught on harvest fish tickets.

Table 3. Subsistence salmon harvest estimates and related information for the Alaskan portion of the Yukon River drainage, 1992. a

Village	Survey Date		Fishing b Households	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Scammon Bay	9/2-9/3		43	316	948	3,795	79	31	43	0	0
Hooper Bay	9/3-9/4	c	60	197	503	12,900	127	28	60	0	0
Bering Sea Coast Subtotal			103	513	1,451	16,695	206	59	103	0	0
Sheldon Pt.	9/3		16	42	388	1,415	490	441	13	3	0
Alakanuk	9/1-9/4		65	155	623	9,951	401	966	30	35	0
Emmonak	9/4-9/5	d	55	231	2,336	12,296	1,628	666	12	43	0
Kotlik	9/8-9/9	e	66	189	1,794	9,577	2,697	3,353	53	13	0
District 1 Subtotal			202	617	5,141	33,239	5,216	5,426	108	94	0
Mt. Village	9/10-9/11, 9/18		88	323	1,249	7,864	1,052	1,971	15	73	0
Pitkas Pt.	9/12, 9/18		10	96	851	759	77	641	3	7	0
St. Marys	9/11-9/13, 9/18		54	169	1,753	7,796	2,356	2,130	9	45	0
Pilot Station	9/14	f	57	139	1,818	6,236	1,170	300	4	53	0
Marshall	9/15		52	244	1,403	2,076	2,727	1,545	5	47	0
District 2 Subtotal			261	971	7,074	24,731	7,382	6,587	36	225	0
Russian Mission	9/16		29	284	1,282	3,331	648	1,148	11	18	0
Holy Cross	10/13-10/14		31	111	3,491	1,001	845	105	14	17	0
District 3 Subtotal			60	395	4,773	4,332	1,493	1,253	25	35	0
Lower Yukon River Drainage Total			626	2,496	18,439	78,997	14,297	13,325	272	354	0
Anvik	10/14		20	187	389	1,142	894	202	15	3	2
Grayling	10/15-10/16		25	239	1,074	3,605	2,993	859	20	4	1
Kaltag	10/12-10/13		34	109	1,084	1,204	2,522	2,105	2	24	8
Nulato	10/7		38	132	1,596	889	1,910	435	9	18	11
Koyukuk	10/8		13	168	510	1,130	2,817	1,877	8	2	3
Galena	10/5-10/6, 10/9		53	332	1,870	3,232	2,393	1,398	27	11	15
Ruby	10/26		16	182	498	2,420	4,499	1,299	6	0	10
District 4 Yukon R. Subtotal		g	199	1,349	7,021	13,622	18,028	8,175	87	62	50
Shageluk Innoko R. Subtotal	10/16	h	17	112	218	5,267	865	296	12	2	1
Huslia	10/8		33	379	751	13,670	1,286	233	33	0	0
Hughes	10/9		7	51	29	1,625	325	21	7	0	0
Allakaket	10/12-10/13		25	177	395	6,368	1,452	0	25	0	0
Alatna	10/12		4	6	42	490	127	0	4	0	0
Bettles	10/13		5	103	53	37	14	0	5	0	0
Koyukuk R. Subtotal			74	716	1,270	22,190	3,204	254	74	0	0
District 4 Subtotal			290	2,177	8,509	41,079	22,097	8,725	173	64	51
Tanana	10/27-10/29		45	592	2,477	4,553	19,365	11,406	18	0	27
Rampart	10/26		18	181	2,802	4,494	5,701	75	13	0	5
Fairbanks NSB	permits	i	29	106	1,394	706	2,491	34	26	0	3
Stevens Village	10/16	j	10	70	1,887	460	150	20	9	0	1
Birch Creek	10/22		1	18	44	0	0	0	1	0	0
Beaver	10/15		10	45	1,564	12	361	398	9	0	1
Ft. Yukon	10/20-10/22		61	444	4,122	1,700	2,284	341	38	0	23
Circle	permits	k	16	190	1,585	265	6,279	54	9	0	7
Central	permits	l	7	20	167	91	100	0	7	0	0
Eagle	permits	m	23	161	1,040	23	5,630	3	19	0	4
Other	permits	n	8	15	571	291	0	0	7	0	1
District 5 Yukon R. Subtotal			228	1,842	17,653	12,595	42,361	12,331	156	0	72

-Continued-

Table 3. (p. 2 of 2). a

Village	Survey Date	b	Fishing Households	Dogs	Chinook	Summer Chum	Fall Chum	Coho	Set Nets	Drift Nets	Fish Wheels
Venetie	10/22		7	164	35	0	3,066	45	7	0	0
Chalkyitsik	10/20		4	63	3	17	274	0	4	0	0
Subtotal Chandalar/Black Rivers			11	227	38	17	3,340	45	11	0	0
District 5 Subtotal			239	2,069	17,691	12,612	45,701	12,376	167	0	72
Manley	permits	o	19	603	551	850	7,010	4,725	12	0	7
Minto	permits	p	13	221	142	625	3,017	614	11	0	2
Nenana	permits	q	31	667	1,267	6,372	13,253	8,895	5	0	26
Healy	permits	r	6	95	0	0	1,003	1,038	4	0	2
Fairbanks NSB	permits	s	102	617	402	1,342	1,394	2,281	87	0	15
Delta Junction	permits	t	4	12	0	0	34	1	4	0	0
Other	permits	w	5	55	76	315	2	0	3	0	2
District 6 Subtotal			180	2,270	2,438	9,504	25,713	17,554	126	0	54
Upper Yukon River Drainage Total			709	6,516	28,638	63,195	93,511	38,655	466	64	177
Alaska, Yukon River Drainage Total			1,335	9,012	47,077	142,192	107,808	51,980	738	418	177

a Data collected by Commercial Fisheries Division. Survey data is expanded for number of fishing households, number of dogs, and catch data. Permit data is unexpanded, the number of dogs is based on permits issued while the number of fishing households and their catch is based on returned permits. Gear data represents the principal gear types used by fishing households with exceptions of other gear types not listed.
b Estimated number of households that fished in non-permit communities or number of permittees who reported fishing in permit required areas.
c A tagging study conducted at Hooper Bay in 1986 by the Bering Sea Fishermen's Association concluded that harvests in the Nouk Spit area of Hooper Bay intercepted Yukon River and Norton Sound chum salmon stocks.
d Includes 1,274 chinook, 3,068 summer chum, 1366 fall chum, and 481 coho salmon from ADF&G test fish catches.
e Includes 441 chinook, 921 summer chum, 1,096 fall chum, and 2,076 coho salmon from ADF&G test fish catches.
f No ADF&G test fishing occured in the 1992 season.
g Does not include summer chum salmon taken during commercial roe fishery used for subsistence.
h Shageluk harvest data from households fishing mainstem Yukon River and Innoko River.
i Data from Fairbanks North Star Borough fishermen who fished the Yukon River in a permit required area. Of the 39 permits issued, 37 returned their permits and 29 fished.
j Permit harvest information from Stevens Village residents was included in the survey data.
k Circle. Of the 21 permits issued, 19 returned their permits and 16 fished.
l Central. Of the 12 permits issued, 12 returned their permits and 7 fished.
m Eagle. Of the 39 permits issued, 36 returned their permits and 23 fished.
n Bettles, Chicken, Savoonga, Tok, and Wasilla residents who fished the Yukon River in a permit required area. 12 permits were issued, 12 returned their permits and 8 fished.
o Manley. Of the 30 permits issued, 28 returned their permits and 19 fished.
p Minto. Of the 30 permits issued, 25 returned their permits and 13 fished.
q Nenana. Of the 52 permits issued, 48 returned their permits and 31 fished. Includes 113 chinook, 112 summer chum, and 110 fall chum salmon from ADF&G test fishwheel.
r Healy. Of the 7 permits issued, 7 returned their permits and 6 fished.
s Data from Fairbanks North Star Borough fishermen who fished the Tanana River. 166 permits were issued, 161 returned their permits and 102 fished. Does not include a harvest of 100 post-spawned fall chum salmon by one carcass permittee.
t Delta. 8 permits were issued, 7 returned their permits, 4 fished. Does not include a harvest of 1,547 post-spawned fall chum salmon by 10 carcass permittees.
w Residents of Coldfoot, Eagle River, Northway, Tanacross and Tok who fished the Tanana River. 9 permits were issued, 9 permits were returned, and 5 fished. Does not include a harvest of 250 post-spawned fall chum salmon by one carcass permittee.

Table 4. Reported Yukon Area subsistence salmon catches taken under authority of a permit, listed by fishing location, 1992. a/

Permit Fishing Area	Permit Type	Issued	Returned	Percent Returned	Fished b/	Reported Harvest							
						Chinook	Summer Chum	Fall Chum	Coho	Whitefish	Sheefish	Burbot	Pike
Yukon River near Haul Road Bridge	SY-#-92	45	42	93%	33	2,241	975	2,491	34	1,588	0	1	2
Yukon River near Circle and Eagle	SE-#-92	85	79	93%	54	2,984	409	12,009	57	259	2	2	0
Tanana River Fishing Subdistrict 6A	SA-#-92	38	35	92%	26	508	450	5,999	5,028	144	0	12	0
Tanana River Fishing Subdistrict 6B c/	SB-#-92	98	89	91%	57	1,587	7,820	18,782	11,409	182	2	18	313
Tanana River Fishing Subdistrict 6C	SC-#-92	149	146	98%	90	343	1,234	896	1,116	115	8	4	11
Tanana River Upstream of Subdistrict 6C	SU-#-92	11	11	100%	4	0	0	36	1	287	0	0	0
Tanana River Whitefish	SW-#-92	6	4	67%	3	0	0	0	0	203	0	0	0
Subsistence Permit Totals		432	406	94%	267	7,663	10,888	40,213	17,645	2,778	12	37	326
Delta River Carcasses	SD-#-92	10	10	100%	9	0	0	1,897	0	0	0	0	0
Grand Total		442 d/	416	94%	276	7,663	10,888	42,110	17,645	2,778	12	37	326

a/ Does not include permit information returned after March 23, 1993.
b/ The number of fishermen who fished based on returned permits.
c/ Includes 113 chinook, 112 summer chum, and 110 fall chum salmon given away as part of the Departments Nenana test fish wheel program.
d/ Includes 4 households that fished in two different permit areas.

Table 5. Subsistence salmon harvest estimates and corresponding confidence intervals for surveyed villages in the Yukon Area, 1992.

Community	Use Groups Combined		Chinook Salmon		Summer Chum Salmon		Fall Chum Salmon		Coho Salmon	
	Total Households	Households Contacted	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)	Estimated Total	CI(95%) (+/-)
Alakanuk	124	34	623	238	9,951	4,680	401	337	966	349
Emmonak	139	37	1,062	738	9,228	4,527	262	0	185	0
Hooper Bay	115	23	503	562	12,900	14,503	127	207	28	42
Kotlik	100	32	1,353	242	8,656	2,241	1,601	767	1,277	325
Scammon Bay	58	18	948	878	3,795	2,713	79	75	31	38
Sheldon's Point	24	21	388	89	1,415	274	490	130	441	152
DISTRICT 1	560	165	4,877	1,326	45,945	16,285	2,960	876	2,928	504
Marshall	63	22	1,403	554	2,076	819	2,727	1,333	1,545	557
Mountain Village	138	43	1,249	358	7,864	2,059	1,052	343	1,971	938
Pilot Station	100	21	1,818	1,206	6,236	3,266	1,171	1,581	300	519
Pitkas Point	24	11	851	580	759	529	77	85	641	681
St. Mary's	84	40	1,753	634	7,796	2,520	2,356	508	2,130	866
DISTRICT 2	409	137	7,074	1,623	24,731	4,712	7,383	2,158	6,587	1,635
Holy Cross	50	21	3,491	1,546	1,001	603	845	536	105	156
Russian Mission	54	19	1,282	584	3,331	614	648	100	1,148	52
DISTRICT 3	104	40	4,773	1,653	4,332	861	1,493	545	1,253	164
Alatna	10	9	42	19	490	333	127	105	0	0
Allakaket	44	20	395	99	6,368	2,941	1,452	1,063	0	0
Anvik	37	20	389	193	1,142	401	894	141	202	43
Bettles	30	21	53	42	37	44	14	18	0	0
Galena	173	41	1,870	729	3,232	1,428	2,393	177	1,398	368
Grayling	56	32	1,074	442	3,605	1,254	2,993	968	859	269
Hughes	20	14	29	12	1,625	786	325	226	21	11
Huslia	60	27	751	492	13,670	12,685	1,286	571	233	128
Kaltag	51	23	1,084	365	1,204	586	2,522	2,107	2,105	2,560
Koyukuk	42	20	510	69	1,130	223	2,817	475	1,877	1,259
Nulato	86	28	1,596	585	889	795	1,910	774	435	273
Ruby	66	23	498	276	2,420	1,480	4,499	1,091	1,299	176
Shageluk	32	23	218	67	5,267	1,186	865	56	296	86
DISTRICT 4	707	301	8,509	1,259	41,079	13,367	22,097	2,994	8,725	2,912
Beaver	35	28	1,564	706	12	9	361	289	398	319
Birch Creek	15	13	44	24	0	0	0	0	0	0
Chalkyitsik	34	27	3	4	17	33	274	50	0	0
Fort Yukon	199	50	4,122	1,608	1,700	1,263	2,284	1,039	341	136
Rampart	28	20	2,802	213	4,494	3,650	5,701	1,445	75	61
Stevens Village	32	20	1,887	445	460	0	150	0	20	0
Tanana	132	42	2,477	453	4,553	922	19,365	2,945	11,406	1,489
Venetie	54	22	35	30	0	0	3,066	1,098	45	0
DISTRICT 5	529	222	12,934	1,881	11,236	3,971	31,201	3,624	12,285	1,530
Survey Totals	2,309	865	38,167	3,499	127,323	21,968	65,134	5,274	31,778	3,711

Table 6. Summary of reported Yukon River tributary coho salmon spawning locations collected from Yukon River subsistence households during the 1992 survey

Village	HHID#	Migrating, Spawning or Dead?	Number Of Coho Observed	Month	Date	Year	River and Stream Locations In Alaska Place Name Dictionary	Longitude/ Latitude	Previously Identified In Yukon River Anadromous Stream Catalog as Coho Salmon Spawning Stream /g
Scammon Bay	390046	Dead	2	August	Mid /Late	Yearly	–Kun River	61° 54' N, 164° 37' W	No
Mountain Village	310038	Spawning	30(+)	August	9 –15	1992	–Anuk River	62° 19' N, 163° 51' W	No
		Spawning	30(+)	August	9–15	1992	–East (South) Fork Andreafsky River	63° 07' N, 161° 46' W	Yes, 1981
Mountain Village	New Hit	Spawning and Dead	Thousands	August For two to three weeks.	15–22	1992	–Archuelinguk River (Clearwater R.) Above Anuk River. Also other creeks near Marshall and Russian Mission.	62° 23' N, 163° 14' W	No
Pilot Station	340011	Spawning and Dead	300(+/–)	August	12–20	1990	–20 miles up the Atchuelinguk River (Chulinak River).	63° 02' N, 161° 27' W	No
Pilot Station	340004	Spawning and Dead	10(+/–)	September	23–31	1991	–29 miles up the Atchuelinguk River (Chulinak River)?	63° 02' N, 161° 27' W	No
Marshall	290035	Spawning	600(+/–) \a	September	1–31	1990	–Wilson Creek Slough – Marshall end of airport.	61° 49' N, 162° 03' W	No
Marshall	290015	Spawning and Dead	100(–) \b	August to October	20 10	1991 1991	–16 miles up Wilson Creek.	61° 51'50" N, 162° 03'20" W	No
Marshall	290011	Spawning and Dead	Hundreds	August and September		1991	–Engineer Creek up to Engeer Lake.	61° 43' N, 161° 56' W	No
			50(+/–)	" "	" "	" "	–Wilson Creek.	61° 51'50" N, 162° 03'20" W	No
			Hundreds	" "	" "	" "	–Kuyukutuk River (up near Muddy Lake behind Russian Mission).	61° 52' N, 161° 41' W	No
Russian Mission	380030	Spawning	10	August	15–20	1992 (Yearly)	–Carnation Creek 10 miles above Russian Mission (1st. creek below Dogfish V.)	Not in Place Names Dict	No
		Spawning	10(–)	August	15–20	1992	–Mission Creek 1 mile below Russian Mission	Not in Place Names Dict	No
		\d	– – –	– – –	– – –	– – –	–Nagayugtalek River?	Not in Place Names Dict	No
St. Marys	420055	Spawning	\c	August to September	20 9	Yearly	–Andreafsky River (West and East Forks).	63° 07' N, 161° 46' W	Yes, 1981 East Fork Only
St. Marys	420052	Migrating	10–20	August	20–30	1992	–West (North) Fork Andreafsky River.	63° 07' N, 161° 46' W	No
Pitka's Point	350010	Migrating	1000(+/–)	September	1	1992	–67 miles up West Fork Andreafsky River	63° 07' N, 161° 46' W	No
		\d	– – –	– – –	– – –	– – –	–Atchuelinguk River.	63° 02' N, 161° 27' W	No
Kotlik	260083	Migrating	1000(+/–)	August	– – –	1991	–Pastolik Slough (Pastolik River)	63° 02' N, 163° 20' W	No

–Continued–

Table 6 (page 2 of 2)

Village	HHID#	Migrating, Spawning or Dead?	Number Of Coho Observed	Month	Date	Year	River and Stream Locations In Alaska Place Name Dictionary	Longitude/ Latitude	Previously Identified In Yukon River Anadromous Stream Catalog as Coho Salmon Spawning Stream /g
Ft. Yukon	160037	Spawning	Hundreds	September	Late	1989	-Sheenjek River, 7 to 30 miles upriver. (At least six spawning holes)	69° 00' N, 144° 00' W	Yes, 74', 75'
Anvik	040014	Spawning	/e	---	---	---	-Anvik River, ~ 10 miles upriver.	63° 39' N, 160° 08' W	Yes, 57', 75', 76'
Anvik	040015	Dead	50(+/-)	November	Several Years		-Hawk River (off of Bonasila River)	62° 30' N, 160° 53' W	No
		Dead	50(+/-)	November	Several Years		-Beaver Creek (off of Anvik River).	62° 50'30" N, 160° 43'00" W	Yes, 57', 75', 76'
Grayling	180003	Spawning and Dead	Hundreds	September to October		1991	-Grayling Creek.	62° 54' N, 160° 04' W	No
Grayling	180024	Dead	Hundreds	September to October		1991	-Grayling Creek.	62° 54' N, 160° 04' W	No
Holy Cross	200001	Migrating	2(+)	September	17	1991	-Reindeer River (off Palmute Slough).	62° 15' N, 158° 28' W	No
Bettles	060017	Spawning and Dead	60(+\-)	September	Late	1990	-North Fork Koyukuk River (3-4 miles upriver).	64° 55' N, 157° 32' W	No
Nulato	330059	Dead	60	September	9	1992	-Nulato River (2 miles upriver).	64° 42' N, 158° 08' W	No
Nulato	330029	Spawning	100	October	5	1992	-Nulato River.	64° 42' N, 158° 08' W	No
Venetie	450030	Spawning	500(+/-)	October	20	1992	-Chandalar River (5 miles upriver from Venetie in side sloughs).	66° 36'35" N, 146° 00'20" W	No
Kaltag	\f	---	---	---	---	---	-Kaltag River.	64° 20' N, 158° 43' W	No
	\f	---	---	---	---	---	-Rodo River.	64° 17' N, 158° 43' W	No

\a Caught approximately 20 fish a day from end of August to first week in October. Eggs fell out of fish as 20 foot gillnet was pulled.
\b Reported to see chinook salmon up Wilson Creek.
\c Did not give an estimate. Household member interviewed said there were lots of red fish.
\d Did not indicate Migrating, Spawning, or Dead, or estimate Number of Coho Salmon Observed.
\e Did not estimate Number of Coho Salmon Observed, or indicated Date observation was made.
\f Household numbers 240001, 240004, 240006, 240007, 240010, 240011, 240017, 240019, 240026, 240028, 240033, 240035, 240040, 240046, 240051, 240057 and 240061 indicated coho salmon have been seen on the Kaltag River. Household numbers 240007, 240011 and 240057 indicated coho salmon have been seen on the Rodo River. Migrating, Spawning or Dead, Numbers of Coho Salmon Observed, and Date of observations were not recorded.
\g Information from Yukon River Salmon Spawning Escapement Surveys through 1983.

Table 7. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 1, Yukon Area, 1992. [a]

Period No.	Period Dates	Hours Fished	No. of Fisher-men	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	6/20	6	394	11,500	4.86	0	0.00	10,001	4.23	11,500	4.86	0	0.00	10,001	4.23
2	6/22-6/23	12	396	22,076	4.65	0	0.00	24,674	5.19	33,576	4.72	0	0.00	34,675	4.87
3	6/25-6/26	6	388	9,975	4.28	0	0.00	7,368	3.16	43,551	4.61	0	0.00	42,043	4.45
6	7/02-7/03	6	398	11,018	4.61	0	0.00	6,916	2.90	54,569	4.61	0	0.00	48,959	4.14
Unrestricted Mesh Size Subtotal		30	433	54,569	4.61	0	0.00	48,959	4.14						
4	6/27	9	386	7,137	2.05	0	0.00	54,642	15.73	7,137	2.05	0	0.00	54,642	15.73
5	6/29-6/30	12	413	9,423	1.90	0	0.00	54,518	11.00	16,560	1.96	0	0.00	109,160	12.95
7	7/06	6	280	1,098	0.65	0	0.00	10,518	6.26	17,658	1.75	0	0.00	119,678	11.84
8	7/09	6	263	767	0.49	0	0.00	8,661	5.49	18,425	1.58	0	0.00	128,339	10.98
Restricted Mesh Size Subtotal [b]		33	428	18,425	1.58	0	0.00	128,339	10.98						
Summer Season Total		63	438	72,994	1.60	0	0.00	177,298	3.89						
Fall Season Total [c]		0	0	0	0.00	0	0.00	0	0.00						
Unlawful Purchases [d]				1,218				31							
Grand Total		63	438	74,212		0		177,329							

[a] Catches reported in numbers of fish sold in the round. Does not include ADF&G test fishery sales.
[b] Six inch maximum mesh size restriction in effect during periods 4,5,7 and 8.
[c] No commmercial openings.
[d] Unlawful purchases by Schenk Seafood Sales, Inc. not reported on fish tickets. The majority of the harvest occured prior to the commercial fishing season.

Table 8. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 2, Yukon Area, 1992. [a]

Period No.	Period Dates	Hours Fished	No. of Fisher-men	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	6/22	6	211	5,500	4.34	0	0.00	5,135	4.06	5,500	4.34	0	0.00	5,135	4.06
2	6/24-6/25	12	242	12,980	4.47	0	0.00	17,554	6.04	18,480	4.43	0	0.00	22,689	5.44
4	6/28	6	228	7,446	5.44	0	0.00	8,601	6.29	25,926	4.68	0	0.00	31,290	5.65
7	7/08	6	203	2,753	2.26	0	0.00	1,209	0.99	28,679	4.24	0	0.00	32,499	4.81
Unrestricted Mesh Size Subtotal		30	262	28,679	4.24	0	0.00	32,499	4.81						
3	6/26	6	202	3,193	2.63	0	0.00	59,936	49.45	3,193	2.63	0	0.00	59,936	49.45
5	7/01-7/02	12	215	3,898	1.51	0	0.00	37,765	14.64	7,091	1.87	0	0.00	97,701	25.77
6	7/06	6	191	2,162	1.89	0	0.00	16,838	14.69	9,253	1.87	0	0.00	114,539	23.20
Restricted Mesh Size Subtotal [b]		24	233	9,253	1.87	0	0.00	114,539	23.20						
Summer Season Total		54	263	37,932	3.24	0	0.00	147,038	12.57						
Fall Season Total [c]		0	0	0	0.00	0	0.00	0	0.00						
Unlawful Purchases [d]				207		0		91							
Grand Total		54	263	38,139		0		147,129							

[a] Catches reported in numbers of fish sold in the round. Does not include ADF&G test fishery sales.
[b] Six inch maximum mesh size restriction in effect during periods 3, 5 and 6.
[c] No commercial openings.
[d] Unlawful purchases by Schenk Seafood Sales, Inc. not reported on fish tickets. The majority of the harvest occured prior to the commercial fishing season.

Table 9. Commercial salmon catch and CPUE by fishing period, set and drift gillnets combined, District 3, Yukon Area, 1992. [a]

Period No.	Period Dates	Hours Fished	No. of Fishermen	Period Catch and Catch Per Unit Effort						Cumulative Catch and Catch Per Unit Effort					
				Chinook	CPUE	Coho	CPUE	Chum	CPUE	Chinook	CPUE	Coho	CPUE	Chum	CPUE
1	7/01 - 7/02	12	13	667	4.28	0	0.00	7	0.04	667	4.28	0	0.00	7	0.04
2	7/05 - 7/06	9	15	846	6.27	0	0.00	33	0.24	1,513	5.20	0	0.00	40	0.14
3	7/08	6	10	306	5.10	0	0.00	25	0.42	1,819	5.18	0	0.00	65	0.19
Unrestricted Mesh Size Subtotal		27	19	1,819	5.18	0	0.00	65	0.19						
Summer Season Total		27	19	1,819	5.18	0	0.00	65	0.19						
Fall Season Total [b]		0	0	0	0.00	0	0.00	0	0.00						
Grand Total		27	19	1,819		0		65							

[a] Catches reported in numbers of fish sold in the round.
[b] No commercial season.

Table 10. Number of salmon caught during commercial fishing periods, but not sold, by district, Yukon Area, 1992. a

District	Chinook	Summer Chum	Pink	Sockeye	Fall Chum	Coho
1	0	39	19	0	0	0
2 b	0	2,600	0	0	0	0
3 b	60	2,873	19	0	0	0
Lower Yukon Area	60	5,512	38	0	0	0
4	42	86	5	2	0	0
5	422	246	0	0	0	0
6	28	40	0	0	0	0
Upper Yukon Area	492	372	5	2	0	0
Yukon Area	552	5,884	43	2	0	0

a 1992 was the first year requiring the reporting of salmon caught during commercial fishing periods, but not sold. Overall compliance with the new regulation appeared to be poor. Unless otherwise noted, totals reflect numbers of fish caught but not sold as reported on fish tickets.

b Districts 2 and 3 totals is an estimate obtained from buyers (not on fish tickets).

Table 11. Commercial salmon harvest, Subdistrict 4-A, Upper Yukon Area, 1992.

Subdistrict 4-A

Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon Number	Chinook Salmon Pounds of Roe	Chinook Expansion Roe Weight a	Chinook Expansion Estimated Harvest b	Summer Chum Salmon Number	Summer Chum Salmon Pounds of Roe	Chum Salmon Expansion Percent Females c	Chum Salmon Expansion Roe Weight d	Chum Salmon Expansion Estimated Harvest e
1	7/05-7/06	24	63	0	57	1.74	33	0	26,963	0.60	0.90	53,723
2	7/08-7/09	24	69	0	14	1.74	8	0	31,512	0.60	0.91	61,522
3	7/12-7/13	24	65	0	15	1.74	9	0	22,937	0.64	0.93	38,835
4	7/15-7/16	24	54	0	0	1.74	0	0	18,289	0.67	0.91	30,091
Subtotal		96	71	0	86		50	0	99,701			184,171

Guideline Harvest Range: 113,000 to 338,000 Summer Chum Salmon

a Average roe weight is from 14 chinook salmon skeins sampled from gillnets on 7/01-7/04.

b Estimated harvest is the number of fish sold in the round plus the number of estimated females harvested to produce roe sold.

c Average percent female is unweighted period average based on commercial season sampling program by gear type.
The average period percentages shown here were not used in the estimated harvest calcuations.

d Average roe weight is unweighted period average based on commercial season sampling program by gear type.
The average period roe weights shown here were not used in the estimated harvest calculations.

e Estimated harvest is the estimated number of males and females harvested to produce the roe sold.

Table 12. Commercial salmon harvest, Subdistricts 4-B and 4-C, Upper Yukon Area, 1992.

Subdistricts 4-B and 4-C EARLY SEASON

Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon Number	Chinook Salmon Pounds of Roe	Chinook Expansion Roe Weight a	Chinook Expansion Estimated Harvest b	Summer Chum Salmon Number	Summer Chum Salmon Pounds of Roe	Chum Salmon Expansion Percent Female c	Chum Salmon Expansion Roe Weight a	Chum Salmon Expansion Estimated Harvest b
1	7/05-7/07	48	14	486	288	2.81	601	620	1,076	0.43	0.87	2,233
2	7/08-7/10	48	20	455	563	2.94	622	415	2,820	0.44	0.84	6,770
3	7/12-7/14	48	18	310	441	3.12	444	514	2,859	0.35	0.80	7,009
4	7/15-7/17	48	18	301	646	2.94	508	505	1,885	0.47	0.83	5,241
5	7/19-7/21	48	16	85	249	3.56	155	306	1,633	0.42	0.87	3,431
6	7/22-7/24	48	15	14	0	2.20	14	299	835	0.49	0.76	2,541
Subtotal		288	22	1,651	2,187		2,344	2,659	11,108			27,225

Harvest Guideline Range: 2,250 to 2,850 Chinook Salmon; 16,000 to 47,000 Summer Chum Salmon

Subdistricts 4-B and 4-C LATE SEASON

Period	Date	Hours Opened	Number of Fishermen	Coho Salmon Number	Coho Salmon Pounds of Roe	Coho Expansion Roe Weight a	Coho Expansion Estimated Harvest b	Fall Chum Salmon Number	Fall Chum Salmon Pounds of Roe	Chum Salmon Expansion Percent Female c	Chum Salmon Expansion Roe Weight a	Chum Salmon Expansion Estimated Harvest b

No late season commercial fishery.

Harvest Guideline Range: 5,000 to 40,000 Fall Chum and Coho Salmon Combined

a Average roe weight is unweighted period average based on commercial season sampling program by gear type.
b Estimated harvest is the number of fish sold in the round plus the estimated number of males and females harvested to produce roe sold
c Percent females is unweighted period average based on commercial season sampling program by gear type.

Table 13. Commercial salmon harvest, Subdistricts 5-A, 5-B and 5-C, Upper Yukon Area, 1992.

Subdistricts 5-A, 5-B and 5-C EARLY SEASON

Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon Number	Chinook Salmon Pounds of Roe	Chinook Expansion Roe Weight a	Chinook Expansion Estimated Harvest b	Summer Chum Salmon Number	Summer Chum Salmon Pounds of Roe	Chum Salmon Expansion Roe Weight a	Chum Salmon Expansion Estimated Harvest b
1	7/10-7/12	48	22	1,989	7	2.50	1,992	3	117	0.9	133
2	7/14-7/15	24	22	1,406	0	2.58	1,406	99	178	0.9	297
Subtotal		72	25	3,395	7		3,398	102	295		430

Harvest Guideline Range: 2,400 to 2,800 Chinook 1,000 to 3,000 Summer Chum Salmon

Subdistricts 5-A, 5-B and 5-C LATE SEASON

Period	Date	Hours Opened	Number of Fishermen	Coho Salmon Number	Coho Salmon Pounds of Roe	Coho Expansion Roe Weight a	Coho Expansion Estimated Harvest b	Fall Chum Salmon Number	Fall Chum Salmon Pounds of Roe	Chum Salmon Expansion Roe Weight a	Chum Salmon Expansion Estimated Harvest b

No late season commercial fishery.

Harvest Guideline Range: 4,000 to 36,000 Fall Chum and Coho Salmon Combined

a Estimated average roe weight in pounds per female used in expansion calculation. A total of 278 chinook salmon skeins were sampled during the two periods.

b Estimated harvest is the number of fish sold in the round plus the estimated number of females harvested to produce roe sold.

Table 14. Commercial salmon harvest, Subdistrict 5-D, Upper Yukon Area, 1992.

Subdistrict 5-D EARLY SEASON

Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon Number	Chinook Salmon Pounds of Roe	Chinook Expansion Roe Weight a	Chinook Expansion Estimated Harvest b	Summer Chum Salmon Number	Summer Chum Salmon Pounds of Roe	Chum Salmon Expansion Roe Weight a	Chum Salmon Expansion Estimated Harvest b
1	7/16-7/18	42	3	457	0	-	457	0	0	-	0
Subtotal		42	3	457	0	-	457	0	0	-	0

Harvest Guideline Range: 300 to 500 Chinook Salmon; 1,000 to 3,000 Summer Chum Salmon (District 5)

Subdistrict 5-D LATE SEASON

Period	Date	Hours Opened	Number of Fishermen	Coho Salmon Number	Coho Salmon Pounds of Roe	Coho Expansion Roe Weight a	Coho Expansion Estimated Harvest b	Fall Chum Salmon Number	Fall Chum Salmon Pounds of Roe	Chum Salmon Expansion Roe Weight a	Chum Salmon Expansion Estimated Harvest b

No late season commercial fishery.

Harvest Guideline Range: 1,000 to 4,000 Fall Chum and Coho Salmon Combined

a Estimated average roe weight in pounds per female used in expansion calculation.

b Estimated harvest is the number of fish sold in the round plus the estimated number of females harvested to produce roe sold.

Table 15. Commercial salmon harvest, District 6, Upper Yukon Area, 1992. a

District 6 EARLY SEASON

Period	Date	Hours Opened	Number of Fishermen	Chinook Salmon Number	Chinook Salmon Pounds of Roe	Chinook Expansion Roe Weight b	Chinook Expansion Estimated Harvest c	Summer Chum Salmon Number	Summer Chum Salmon Pounds of Roe	Chum Expansion Roe Weight b	Chum Expansion Estimated Harvest c
1	7/20-7/22	42	18	549	824	4.88	718	3,408	979	0.88	4,521
2 d	8/03-8/05	42	13	22	60	4.92	34	1,621	913	0.84	2,708
Subtotal		84	19	572 e	884		752	5,029	1,892		7,228
Harvest Guideline Range:				600 to 800 Chinook Salmon				13,000 to 38,000 Summer Chum Salmon			

District 6 LATE SEASON

Period	Date	Hours Opened	Number of Fishermen	Coho Salmon Number	Coho Salmon Pounds of Roe	Coho Expansion Roe Weight b	Coho Expansion Estimated Harvest c	Fall Chum Salmon Number	Fall Chum Salmon Pounds of Roe	Chum Expansion Roe Weight b	Chum Expansion Estimated Harvest c
3 f	9/07-9/09	42	22	2,349	306	1.10	2,627	10,095	1,421	0.86	11,747
4 f	9/18-9/19	24	20	4,207	1,374	1.20	5,352	5,626	1,385	0.84	7,275
Subtotal		66	22	6,556	1,680		7,979	15,721	2,806		19,022
Harvest Guideline Range:				2,750 to 20,500 Fall Chum and Coho Salmon Combined							

a Does not include the department test fish sales.

b Estimated average roe weight in pounds per female based on commercial season sampling and used in the estimated harvest calculation. A total of 196 chinook, 469 summer chum, 400 fall chum, and 400 coho salmon skeins were sampled during the four periods.

c Estimated harvest is the estimated number of fish sold in the round plus the estimated number of females harvested to produce roe sold.

d Subdistrict 6-A and Subdistrict 6-B only.

e Subtotal includes one chinook salmon sold during the fall season, period three.

f Subdistrict 6-B and Subdistrict 6-C only.

Table 16. Commercial salmon sales and estimated harvest, by Subdistrict and District, Yukon Area 1992. a b

District or Subdistrict	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho			Total Salmon		
		Numbers	Roe	Estimated	Numbers	Roe	Estimated	Numbers	Roe	Estimated	Number	Roe	Estimated	Numbers	Roe	Estimated
District 1 d	438	74,212	0	74,212	177,329	0	177,329	0	0	0	0	0	0	251,541	0	251,541
District 2 e	263	38,139		38,139	147,129	0	147,129	0	0	0	0	0	0	185,268	0	185,268
Subtotal	675	112,351	0	112,351	324,458	0	324,458	0	0	0	0	0	0	436,809	0	436,809
District 3	27	1,819	0	1,819	65	0	65	0	0	0	0	0	0	1,884	0	1,884
Lower Yukon Area	679	114,170	0	114,170	324,523	0	324,523	0	0	0	0	0	0	438,693	0	438,693
4-A	71	0	86	50	0	99,701	184,171 f	-	-	-	-	-	-	0	99,787	184,221
4-B,C	22	1,651	2,187	2,344	2,659	11,108	27,225 f	0	0	0	0	0	0	4,310	13,295	29,569
District 4	90	1,651	2,273	2,394	2,659	110,809	211,396 f	0	0	0	0	0	0	4,310	113,082	213,790
5-A,B,C	25	3,395	7	3,398	102	295	430	0	0	0	0	0	0	3,497	302	3,828
5-D	3	457	0	457	0	0	0	0	0	0	0	0	0	457	0	457
District 5	28	3,852	7	3,855	102	295	430	0	0	0	0	0	0	3,954	302	4,285
District 6	25	572	884	752	5,029	1,892	7,228	15,721	2,806	19,022	6,556	1,680	7,979	27,878	7,262	34,981
Upper Yukon Area	143	6,075	3,164	7,001	7,790	112,996	219,054	15,721	2,806	19,022	6,556	1,680	7,979	36,142	120,646	253,056
Yukon Area	822	120,245	3,164	121,171	332,313	112,996	543,577	15,721	2,806	19,022	6,556	1,680	7,979	474,835	120,646	691,749

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, estimated harvest is the number of fish sold in the round plus the estimated number of females harvested to produce the roe sold. All fish sold in the round in the Lower Yukon Area.
b Does not include Department test fish sales.
c Number of unique permits fished by district, subdistrict or area. Totals by area may not add up due to transfers between subdistricts.
d Includes 1,218 chinook and 31 summer chum salmon illegally sold in District 1.
e Includes 207 chinook and 91 summer chum salmon illegally sold in District 2.
f Estimated harvest of District 4 summer chum salmon is the estimated number of males and females harvested to produce the roe sold.

Table 17. Salmon total utilization by specie and fishery, Yukon River drainage, 1992. a

	Chinook	Summer Chum	Fall Chum	Coho
District 1				
Subsistence	6,592	49,934	5,422	5,485
Commercial	74,212 b	177,329 c	0	0
Test Fish Sales	930	1,918	0	0
Subtotal	81,734	229,181	0	0
District 2				
Subsistence	7,074	24,731	7,382	6,587
Commercial	38,139 d	147,129 e	0	0
Test Fish Sales	0	0	0	0
Subtotal	45,213	171,860	0	0
District 3				
Subsistence	4,773	4,332	1,493	1,253
Commercial	1,819	65	0	0
Subtotal	6,592	4,397	1,493	1,253
Lower Yukon Area				
Subsistence	18,439	78,997	14,297	13,325
Commercial	114,170	324,523	0	0
Test Fish Sales	930	1,918	0	0
Subtotal	133,539	405,438	14,297	13,325
District 4				
Subsistence f	8,509	41,079	22,097	8,725
Commercial g	1,651	2,659	0	0
Commercial Related h	743	208,737 i	0	0
Subtotal	10,903	252,475	22,097	8,725
District 5				
Subsistence	17,691	12,612	45,701	12,376
Commercial g	3,852	102	0	0
Commercial Related h	3	328	0	0
Subtotal	21,546	13,042	45,701	12,376
District 6				
Subsistence	2,438	9,504	25,713	17,554
Commercial g	572	5,029	15,721	6,556
Commercial Related h	180	2,199	3,301	1,423
Personal Use	0	0	0	0
Test Fish Sales	32	49	1,407	1,629
Sport Fish j	k	k	k	k
Subtotal	3,222	16,781	46,142	27,162
Upper Yukon Area				
Subsistence	28,638	63,195	93,511	38,655
Commercial g	6,075	7,790	15,721	6,556
Commercial Related h	926	211,264	3,301	1,423
Personal Use	0	0	0	0
Test Fish Sales	32	49	1,407	1,629
Sport Fish j	k	k	k	k
Subtotal	35,671	282,298	113,940	48,263
Yukon Area				
Subsistence	47,077	142,192	107,808	51,980
Commercial g	120,245	332,313	15,721	6,556
Commercial Related h	926	211,264	3,301	1,423
Personal Use	0	0	0	0
Test Fish Sales	962	1,967	1,407	1,629
Sport Fish	k	k	k	k
Total	169,210	687,736	128,237	61,588
Canadian Harvest l	19,174	0	23,182	0
Yukon River Drainage Total Utilization	188,384	687,736	151,419	61,588

a Preliminary information.
b Includes 1,218 chinook salmon sold illegaly.
c Includes 31 summer chum salmon sold illegaly.
d Include 207 chinook salmon sold illegaly.
e Includes 91 summer chum salmon sold illegaly.
f Includes the Innoko River drainages.
g Number of fish sold in the round only. All fish sold in the Lower Yukon Area are in the round.
h Unless otherwise noted, commercial related refers to the estimated number of females harvested
i The District 4 commercial related includes the estimated number of males and and females harve
j Sport fish harvest for the entire Alaskan drainage. The majority of this harvest occours in District 6
k Information not avaiable.
l Includes commercial, Indian food fish, sport and domestic harvests combined.

Table 18. Yukon River 1992 fishing season escapement goals for selected salmon species and streams.

Stream	Escapement Goals a		
	Chinook	Summer Chum	Fall Chum b
Andreafsky River			
East Fork	1,500	109,000	
West Fork	1,400	116,000	
Anvik River			
Aerial			
Mainstem (entire drainage)	1,300		
Yellow River to McDonald Cr	500		
Goblet Cr to McDonald Cr		356,000	
Sonar		>500,000 b	
Nulato River			
North Fork	800	53,000	
South Fork	500		
Hogatza River			
Clear Creek		8,000	
Caribou Creek		9,000	
Gisasa River	600		
Chena River			
Mainstem from Flood Control Dam to Middle Fork	1,700		
Salcha River			
TAPS to Caribou Creek	2,500	3,500	
Sheenjek River			>64,000 c
Fishing Branch River (Y.T.)			50,000-120,000 d
Toklat River			>33,000 c
Delta River			>11,000 c
Mainstem Upper Yukon River (Y.T.)b	33,000-43,000 e,f		>80,000 f,g

a Index streams have been designated due to their importance as spawning areas and/or by their geographic location with respect to other unsurveyable salmon spawning streams in the general area. Escapement goals represent the approximate number of desired spawners considered necessary to maintain the historical yield from the stocks and are based upon historical performance, i.e., they are predicated upon some measure of historic averages. Unless otherwise indicated, escapement goals are based upon aerial survey index estimates which do not represent total escapement but do reflect annual spawner abundance when using standard survey methods under acceptable survey conditions. These escapement goals represent the latest review/revision by ADF&G (March 1992) unless otherwise noted.

b Escapement goals of total spawning abundance based upon sonar, weir, mark-and-recapture, or expansions from inseason point estimates.

c Escapement goals developed by ADF&G for November 1990 JTC.

d Escapement goals developed by JTC in October 1987. (Page 42 October 6-8, 1987 JTC report).

e Escapement goals developed by JTC in March 1987. A stabilization escapement goal for years 1990-1995 is 18,000 chinook salmon.

f Estimated total spawning escapement excluding Porcupine River (estimated border escapement minus Canadian harvests).

g Escapement goal established by JTC in November 1990.

Table 19. Salmon spawning escapement estimates for the Yukon River drainage, 1992. a

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Andreafsky River						
East Fork	7/17	Poor	1,030	11,308	(Numerous Pink Salmon)	
West Fork	7/17	Poor	2,002	37,808	(Numerous Pink Salmon)	
	Subtotal		3,032	49,116	--	--
Atchuelinguk River (Chulinak R)	7/29	Good	898	--	--	--
Nageethluk River	7/30	Poor	62	573	(1,250 Pink Salmon)	
	Subtotal		960	573	--	--
Innoko River						
Iditarod River	7/30	Poor	0	0	--	--
Yukon River (Pilot Station)						
Main River (Biosonics Sonar)			--	(Did Not Operate)		--
Anvik River						
Aerial Counts						
Mainstem River (excluding tribs)	7/24	Good	1,354	--	--	--
Yellow Ri-McDonald Cr	7/24	Good	(931)	--	--	--
Beaver Creek	7/24	Good	130	--	--	--
Otter Creek	7/24	Good	38	--	--	--
Swift River	7/24	Good	7	--	--	--
McDonald Creek	7/24	Good	3	--	--	--
Canyon Creek	7/24	Good	4	--	--	--
Bendix Sonar Estimate	6/29-7/25		--	775,626 *	--	--
	Subtotal		1,536	775,626	--	--
Blackburn Creek b	7/23	Good	1	1,496	(36 Pink Salmon)	
Rodo River	7/22	Fair	187	4,465	--	--
Kaltag River			--	--	--	--
Tower (4-H & Youth Development)	7/18-26	Partial Cts	17 c	736 c	--	--
	Subtotal		17	736	--	--
Nulato River						
South Fork	7/22	Fair	231	5,322	--	--
North Fork (from confl w/ Yukon)	7/22	Fair	348	12,358	--	--
	Subtotal		579	17,680	--	--
Koyukuk River Drainage						
Gisasa River	7/22	Fair	910	9,300	--	--
Dakli River	7/22	Good	1	4,012	--	--
Wheeler Creek	7/22	Good	0	7,147	--	--
	Subtotal		1	11,159	--	--
Hogatza River						
Clear Creek	7/22	Fair	--	1,073	--	--
Caribou Creek (aerial)	7/22	Fair	--	1,913	--	--
Ground Survey upper portion b	7/28	Good	--	(940)	--	--
	Subtotal		--	2,986	--	--
Indian River	7/22	Fair	0	1,597	--	--
Alatna River						
Helpmejack Creek	7/30	Good	1	211	--	--
Rockybottom Creek	7/30	Good	0	141	--	--
Malamute Fork	7/30	Good	56	666	--	--
Iniakuk River	7/30	Good	6	642	--	--
Mettanpherg Creek	7/30	Good	1	167	--	--
	Subtotal		64	1,827	--	--

-continued-

Table 19. (page 2 of 4)

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
South Fork Koyukuk River	7/30	Good	412	169	--	--
Jim River	7/29	Good	179	180	--	--
	Subtotal		591	349	--	--
John River	7/30	Good	6	0	--	--
Malamute Fork	7/30	Fair-Good	0	0	--	--
North Fork Koyukuk River	7/29	Good	38	5	--	--
Middle Fork Koyukuk River	7/29	Good	168	10	--	--
Total Koyukuk River			1,778	27,233	0	0
Melozi Hot Springs Creek	7/23	Fair	4	1,852	--	--
Tozitna River	7/23	Fair	69	794	--	--
Total Lower Yukon River			8,163	879,571	0	0
Lower Tanana River Drainage						
Kantishna River Drainage						
Toklat River	10/19	Fair	--	--	155	0
Barton Creek	10/20	Partial	--	--	0	55
Floodplain vic Rdhse d	10/15-19	Good	--	--	(6,489)	151
Geiger Creek b	10/17	Good	--	--	(1,648)	77
Sushana River d	10/16,10/19	Good	--	--	(1,433)	2
Population Estimate e			--	--	10,813	--
	Subtotal		--	--	10,968	285
Bearpaw River	10/19	Poor	--	--	130	0
Nenana River Drainage						
Eastern spring area off Teklanika River vicinity Comma Lake	10/19	Fair	--	--	--	164
Seventeen Mile Slough	7/25,10/19	Too early,F	35	115	190	490
Lost Slough	10/19	Fair	--	--	0	372
	Subtotal		35	115	190	1,026
Chatanika River	7/27	Fair	79	8	--	--
Chena River						
Mainstem River (aerial)	8/11	Fair-Poor	825	848	--	--
MCD to Middle Fk (index area)	8/11	Fair-Poor	(799)	(838)	--	--
Slough #1 (Foot survey)	8/14	Good	(0)	(331)	--	--
Slough #2 (Foot survey)	8/14	Good	(1)	(26)	--	--
Slough #3 (Foot survey)	8/14	Good	(0)	(324)	--	--
Slough #4 (Foot survey)	8/14	Good	(0)	(236)	--	--
Population Estimate f,g			(5,395)*	(6,100)*	--	--
	Subtotal		825	848	--	--
Salcha River						
Mainstem River (aerial)	8/3,8/11	Fr-Pr,Good	1,484	3,222	--	--
TAPS to Caribou Cr (index area)	7/20	Poor	(1,436)	--	--	--
Slough #1 (Foot survey)	8/12	Good	(0)	(155)		
Slough #2 (Foot survey)	8/12	Good	(2)	(735)		
Slough #3 (Foot survey)	8/12	Good	(0)	(740)		
Slough #4 (Foot survey)	8/12	Good	(4)	(1,309)		
Population Estimate f,g			(7,862)*	(14,000)*	--	--
	Subtotal		1,484	3,222	--	--
Total Lower Tanana River			2,423	4,193	11,288	1,311

-continued-

Table 19. (page 3 of 4)

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Upper Tanana River Drainage						
Open water vic of Little Delta R mo	10/30	Incomplete	--	--	20	0
Richardson Clearwater River g	10/16	Fair	--	--	0	500
Mainstem Tanana sloughs between						
Shaw Creek and Timber (Aerial)	10/30	Partial	--	--	854	0
Sloughs across from Timber b	10/30	Partial	--	--	(934)	0
Delta River						
Foot Survey (peak count)	11/4	Good	--	--	(8,084)	16
Population Estimate h			--	--	8,893	--
Goodpaster River	7/27	Poor	148	--	--	--
Bluff Cabin Slough	10/30	Fair	--	--	3,615	20
Clearwater Lake Outlet Slough	10/30	Fair	--	--	1,182	70
Clearwater Lake and Outlet g,i	10/26	Good	--	--	200	229
Delta Clearwater River g,i	10/26	Good	--	--	200	3,963
Total Upper Tanana River			148	--	14,964	4,798
Total Tanana River			2,571	4,193	26,252	6,109
Minook Creek	7/29	Fair	0	3	--	--
Porcupine River Drainage						
Sheenjek River (Aerial)	9/5	Poor-Partia	--	--	(Few hundred)	--
Bendix Sonar Estimate	8/9-9/19		--	--	79,315 *	--
Fishing Branch River (Aerial) j	9/30	Fair-Good	--	--	(3,570)	--
Weir Passage j	9/1-10/17		--	--	22,517	--
Total Porcupine River			--	--	101,832	--
Yukon River (Eagle)						
Main River HTI Sonar (split beam)			--	(1st Year - Expermental)		
Total Alaskan Portion of Drainage			10,734	883,767	105,567 k	6,109
Yukon Territory Streams j						
White River	10/14	Fair	--	--	2	--
Donjek River	10/14	Fair	--	--	125	--
Kluane River	10/14	Good	--	--	3,339	--
Tincup Cr	8/28	Good	73	--	--	--
Koidern River	10/14	Good	--	--	4	--
	Subtotal		73	--	3,470	--
Pelly River Drainage						
Ross River	8/29	Good	423	--	--	--
Tatchun Creek b	9/4	Good	106	--	--	--
Little Salmon River	8/27	Fair-Good	494	--	--	--
Big Salmon River						
Big Salmon Lake to old weir site	10/16	Good	--	--	0	--
Big Salmon Lake to Souch Cr	8/27	Good	617	--	--	--
Teslin River Drainage						
Mainstem vicinity Boswell Cr	10/22	?	--	--	450	--
Nisutlin River						
Mainstem (Sidney Cr-100mile Cr)	8/27	Good	241	--	--	--
Wolf River (Wolf Lk-Fish Cr)	8/27	Good	110	--	--	--
	Subtotal		351	--	450	--
Whitehorse Fishway Counts	8/6-9/4		758 m	--	--	--

-continued-

Table 19. (page 4 of 4)

Stream (drainage)	Date	Survey Rating	Chinook	Summer Chums	Fall Chums	Coho
Mainstem Yukon River						
Tatchun Creek to Ft Selkirk	10/16	Fair	--	--	4,438	--
Border Passage Estimate f,n			(38,946)*	--	(67,924)*	--
	Subtotal		--	--	4,438	--
Total Yukon Territory (observed)			2,822	--	30,875 k	--
Total Yukon Territory (estimated) p			(20,045)*	--	(46,600)*	--
Yukon River Drainage Totals			13,556	883,767	136,442	6,109

a Estimates are from aerial surveys (peak count) unless otherwise indicated; carcass counts included. Data in parentheses not included in totals or subtotals. Latest table revision April 16, 1993.
b Foot survey.
c Unexpanded (partial) tower counts. Numbers represent "net" upstream movement (i.e., upstream minus downstream passage).
d Combination foot and aerial survey.
e Population estimate based upon survey timing and salmon streamlife data.
f Population estimate based upon mark and recapture study.
g Sport Fish Division estimate.
h Population estimate based upon replicate foot surveys and salmon streamlife data.
i Boat survey.
j Canadian Department of Fisheries and Oceans (DFO) estimate.
k Total for Alaskan portion of drainage does not include Fishing Branch River. Total for Yukon Territory includes Fishing Branch River.
m Only 642 of the chinook salmon which returned to the fishway were passed, including 43 males which were spawned once and released. Eighty-six females and 73 males were taken for hatchery brood stock. The number of clipped chinook salmon which returned to the fishway totaled 243.
n Canadian border passage estimate for Yukon Territory streams excluding the Fishing Branch River. Canadian harvest has not been removed; these are "border" escapement estimates.
p Canadian estimated spawning escapement for Yukon Territory streams excluding the Fishing Branch River; from DFO tagging study (border passage estimate minus harvest).
* Preliminary

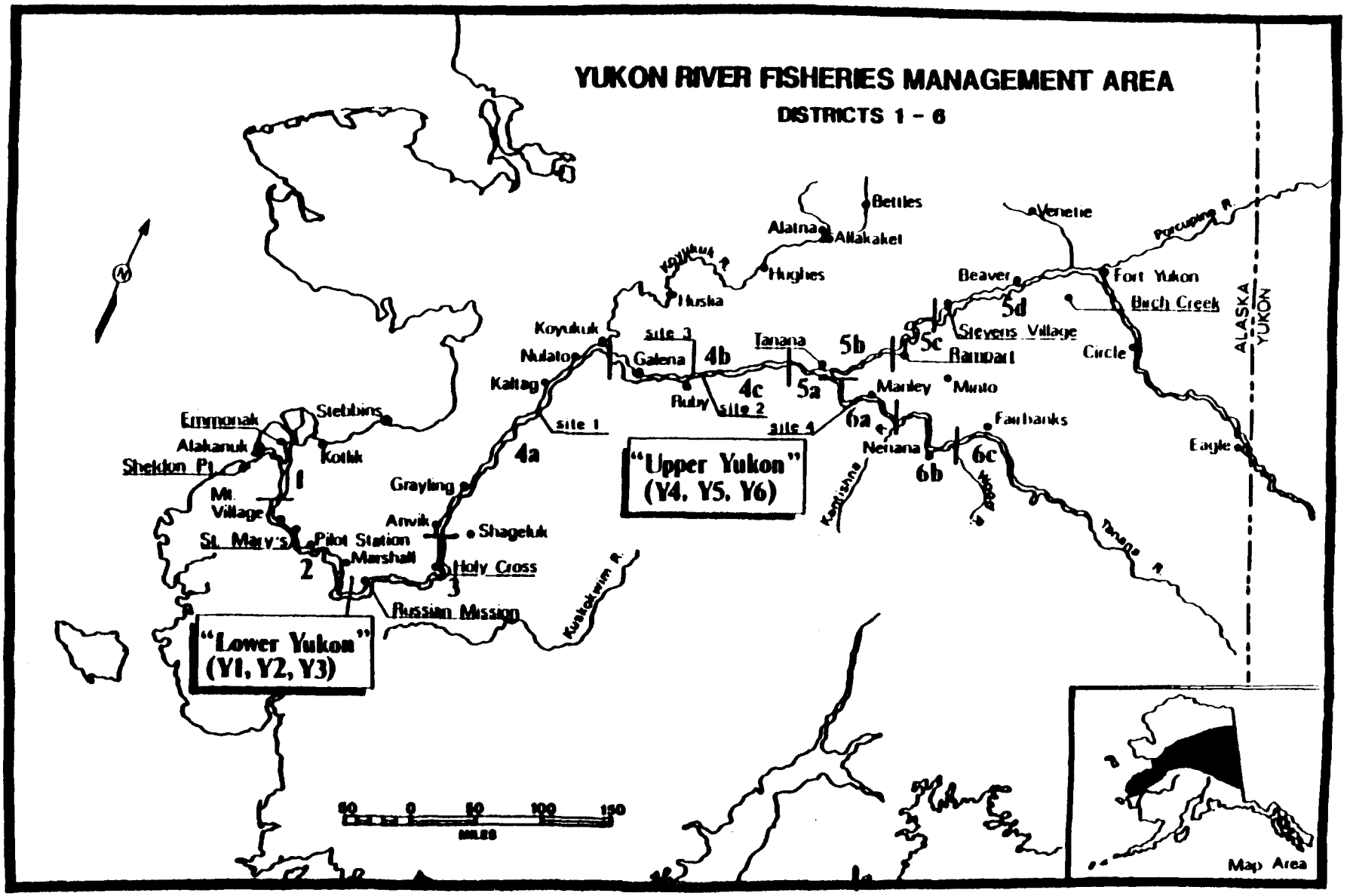

Figure 1. Map of Alaskan portion of the Yukon River drainage showing fishing district boundaries, 1992.

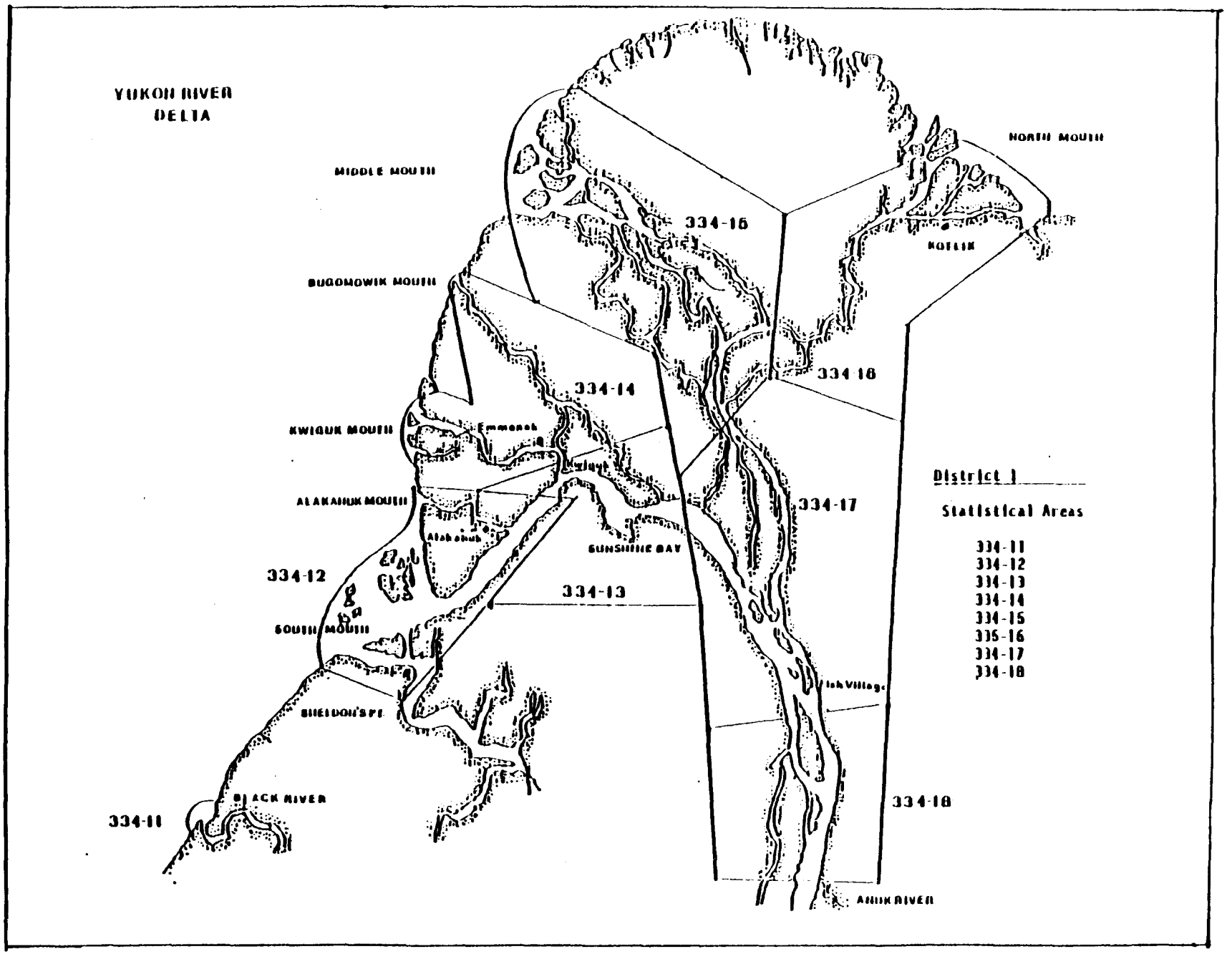

Figure 2. District 1 of Yukon management area with statistical areas.

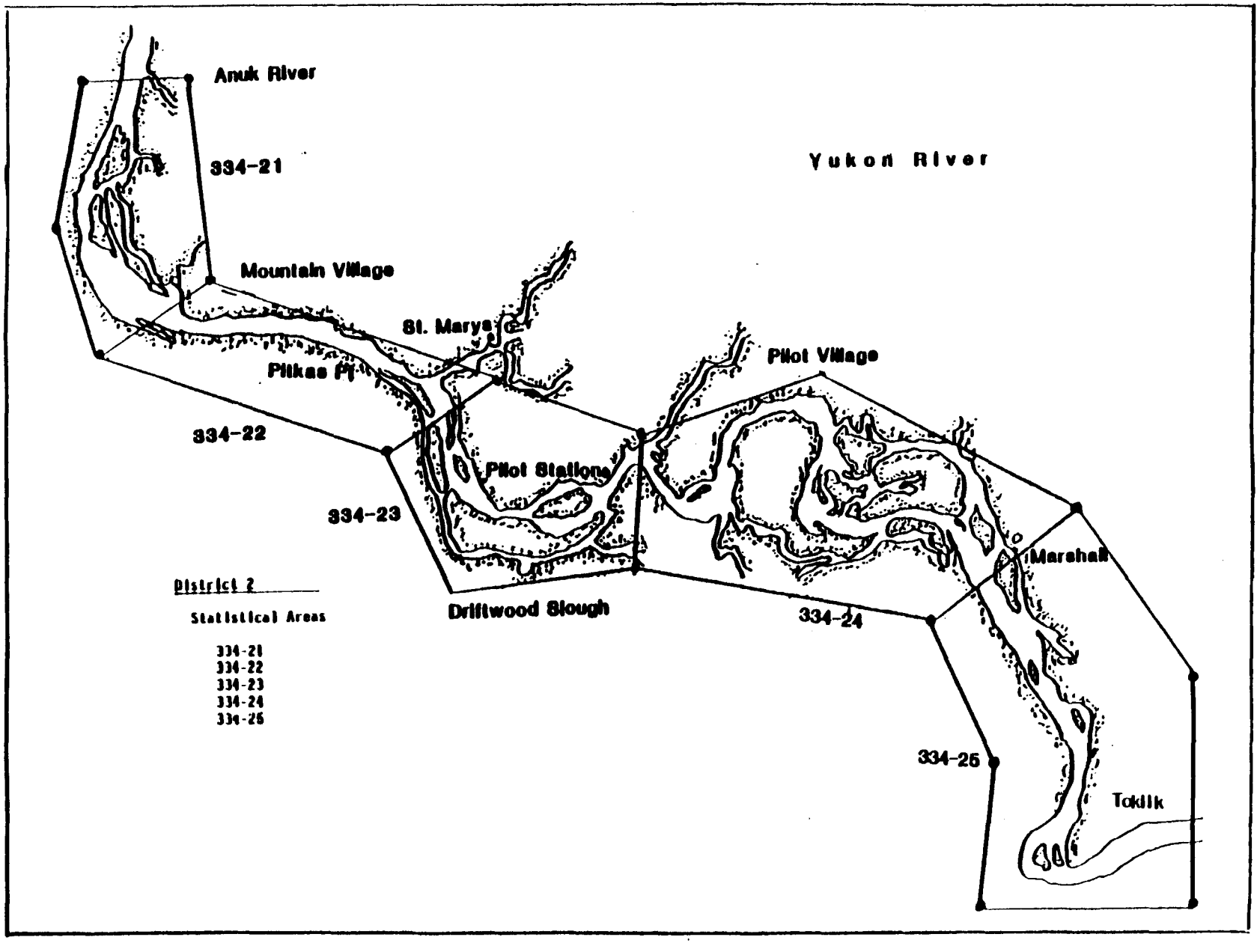

Figure 3. District 2 of Yukon management area with statistical areas.

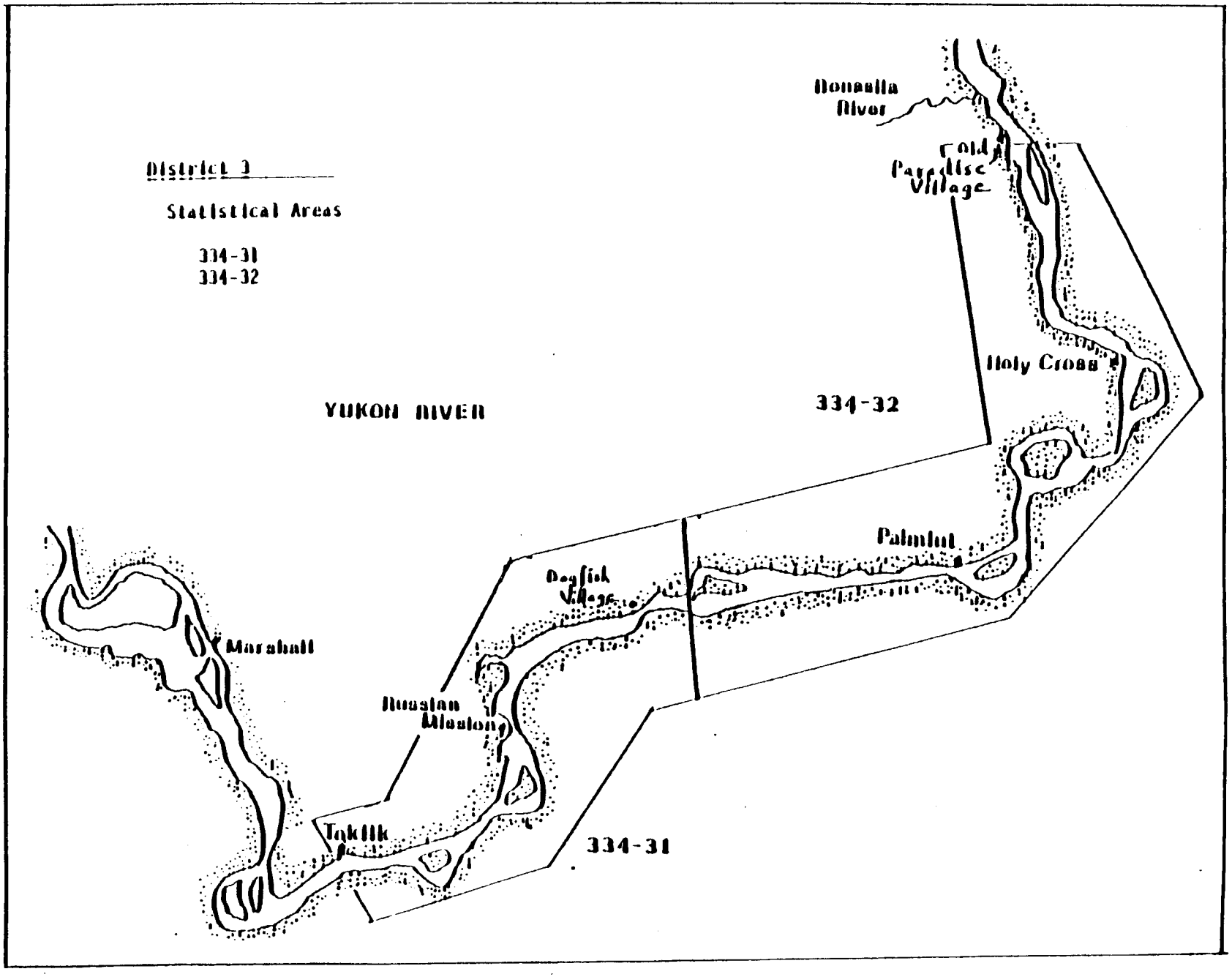

Figure 4. District 3 of Yukon management area with statistical areas.

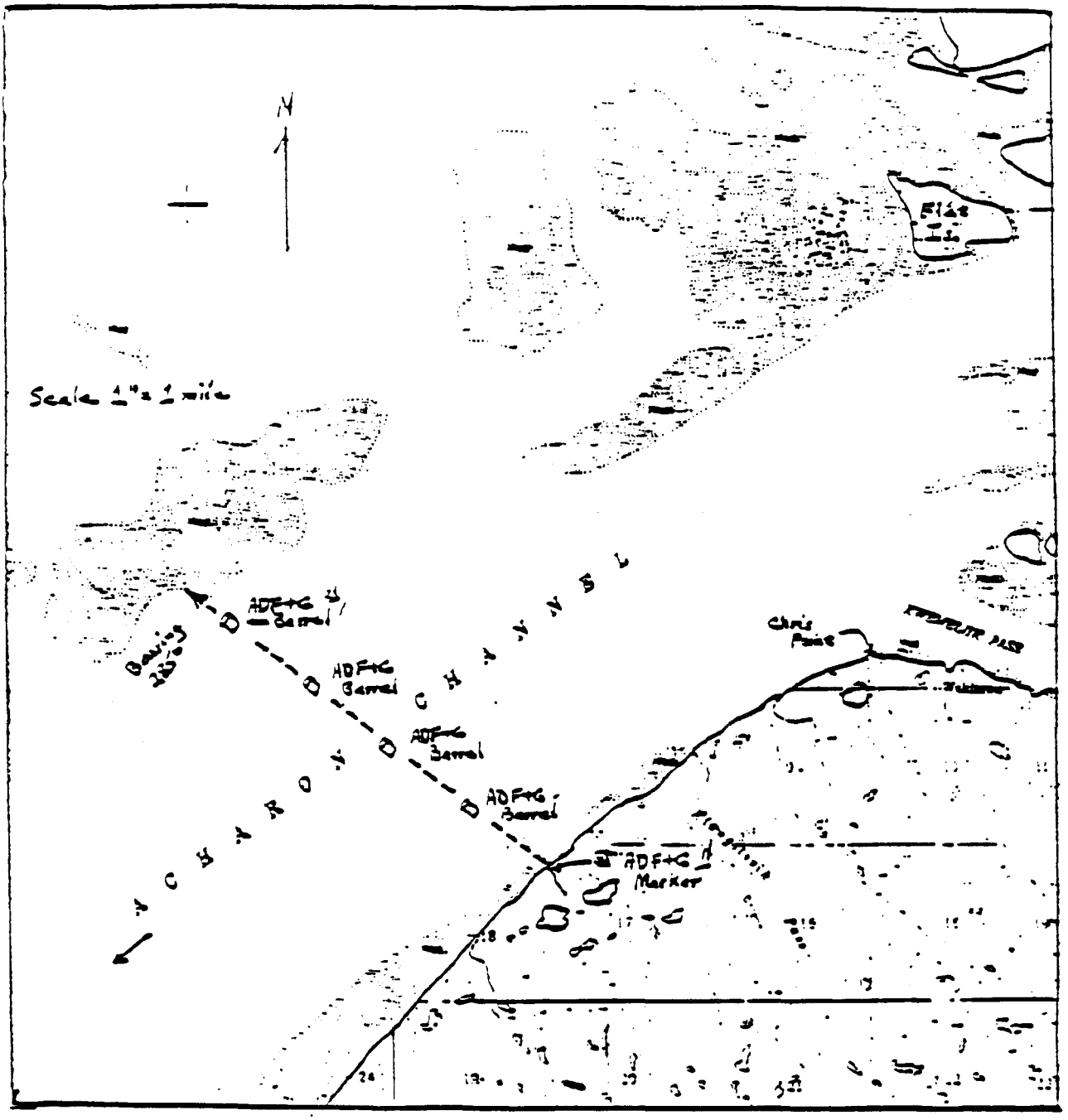

Figure 5. Closed waters Acharon Channel, south mouth Yukon River. (5AAC 05.350. CLOSED WATERS. (1) Acharon Channel of the south mouth area of the Yukon River west of a 2-1/2 nautical mile long line bearing 295° from an ADF&G regulatory marker located below Chris Point to the opposite side of the channel; the line may be marked by a series of yellow and green barrels placed by the Department between shore markers).

1/ ADF&G Regulatory Marker Sign, erected 5' height with driftwood logs, located on river bank at terminus of rivulet between two lakes approximately 2-1/2 miles below Chris Point.

2/ ADF&G yellow and green 55 gal. barrels anchored offshore.

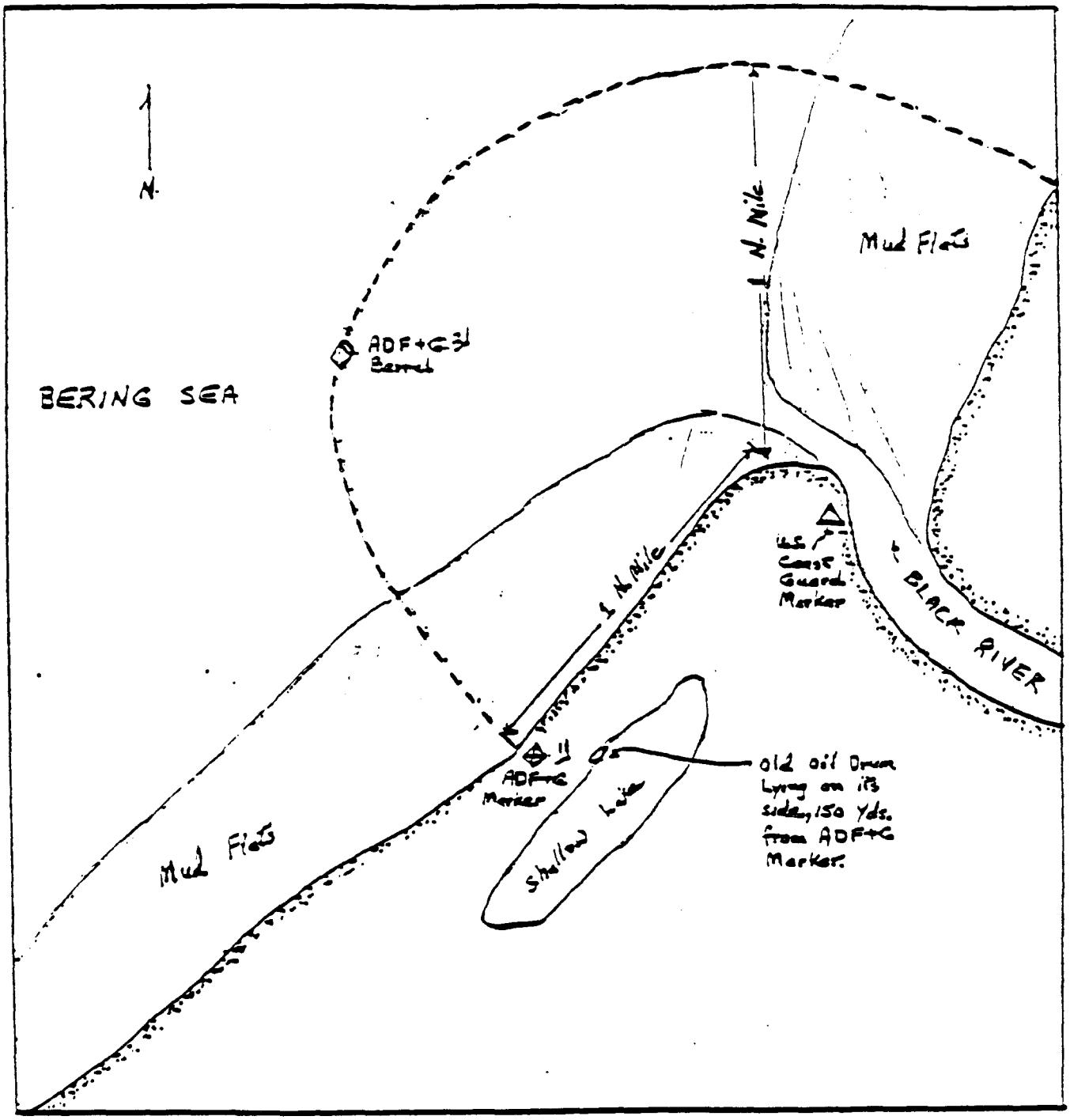

Figure 6. Closed waters of Black River mouth. (5AAC 05.350. CLOSED WATERS. (3) waters west of a one nautical mile radius from the mouth of Black River).

1/ ADF&G Regulatory Marker Sign erected 6' height with driftwood log

2/ ADF&G yellow and green 55 gal. barrel anchored 1 nautical mile offshore.

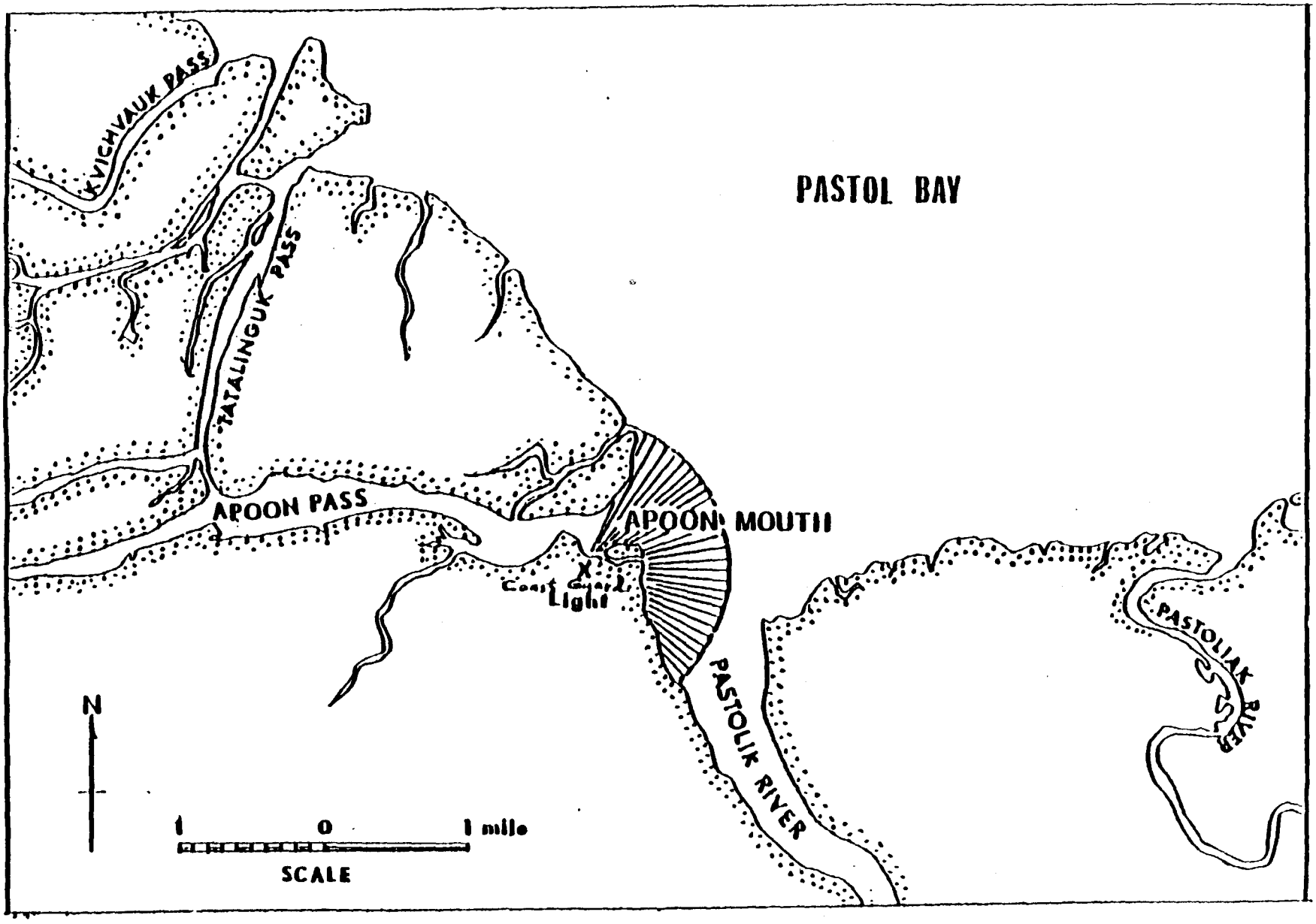

Figure 7. Closed waters of Apoon Mouth, Yukon River (5 AAC 05.350. CLOSED WATERS. (9) Waters east of a one nautical mile radius from a U.S. Coast Guard light at the mouth of Apoon Pass).

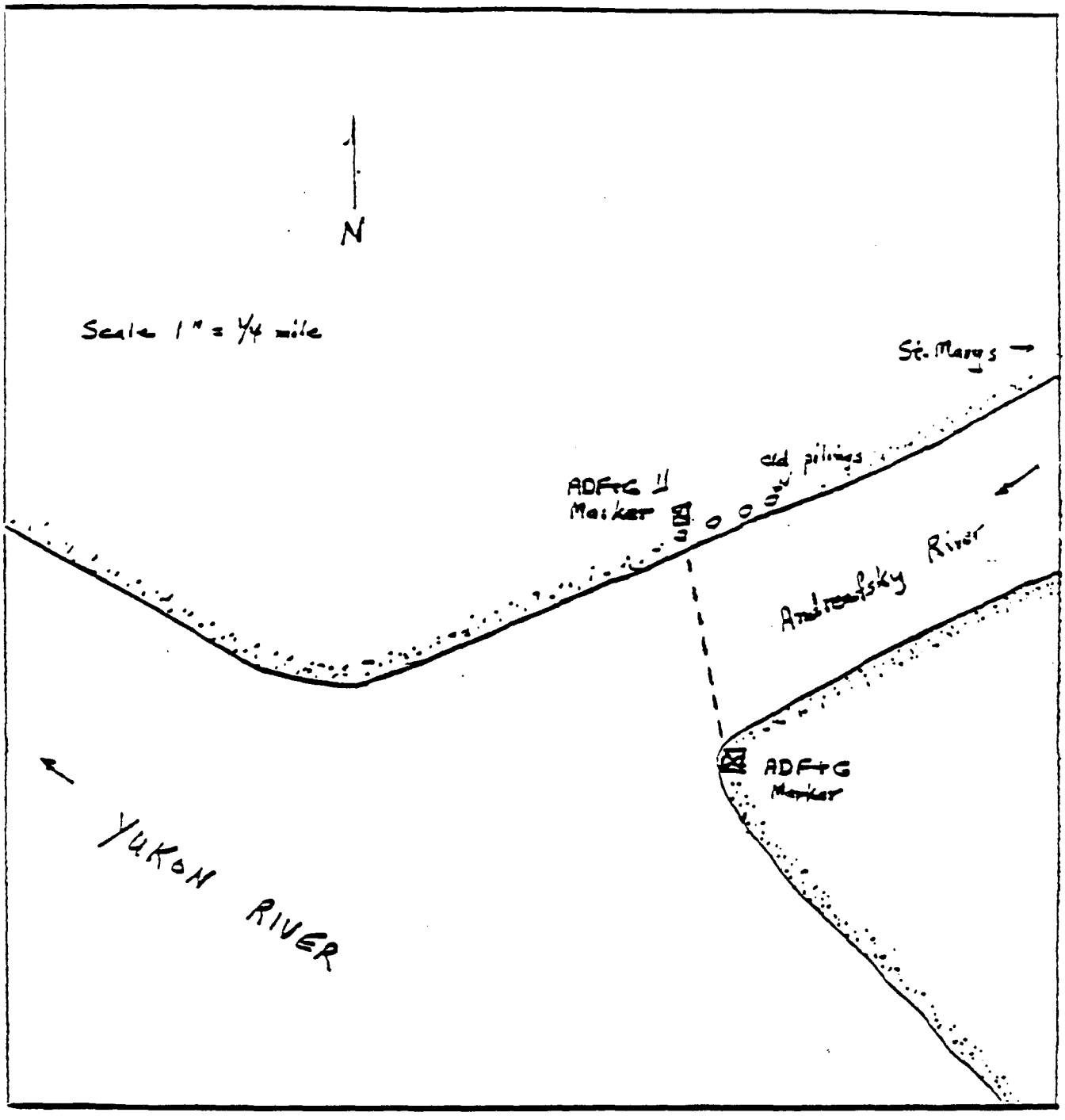

Figure 8. Closed waters of Andreafsky River mouth. (5AAC 05.350. CLOSED WATERS. (4) waters of the Andreafsky River upstream of a line from Department regulatory markers placed on each side of the river at its mouth).

1/ North bank ADF&G regulatory marker sign attached to 4th wooden piling stump downstream.

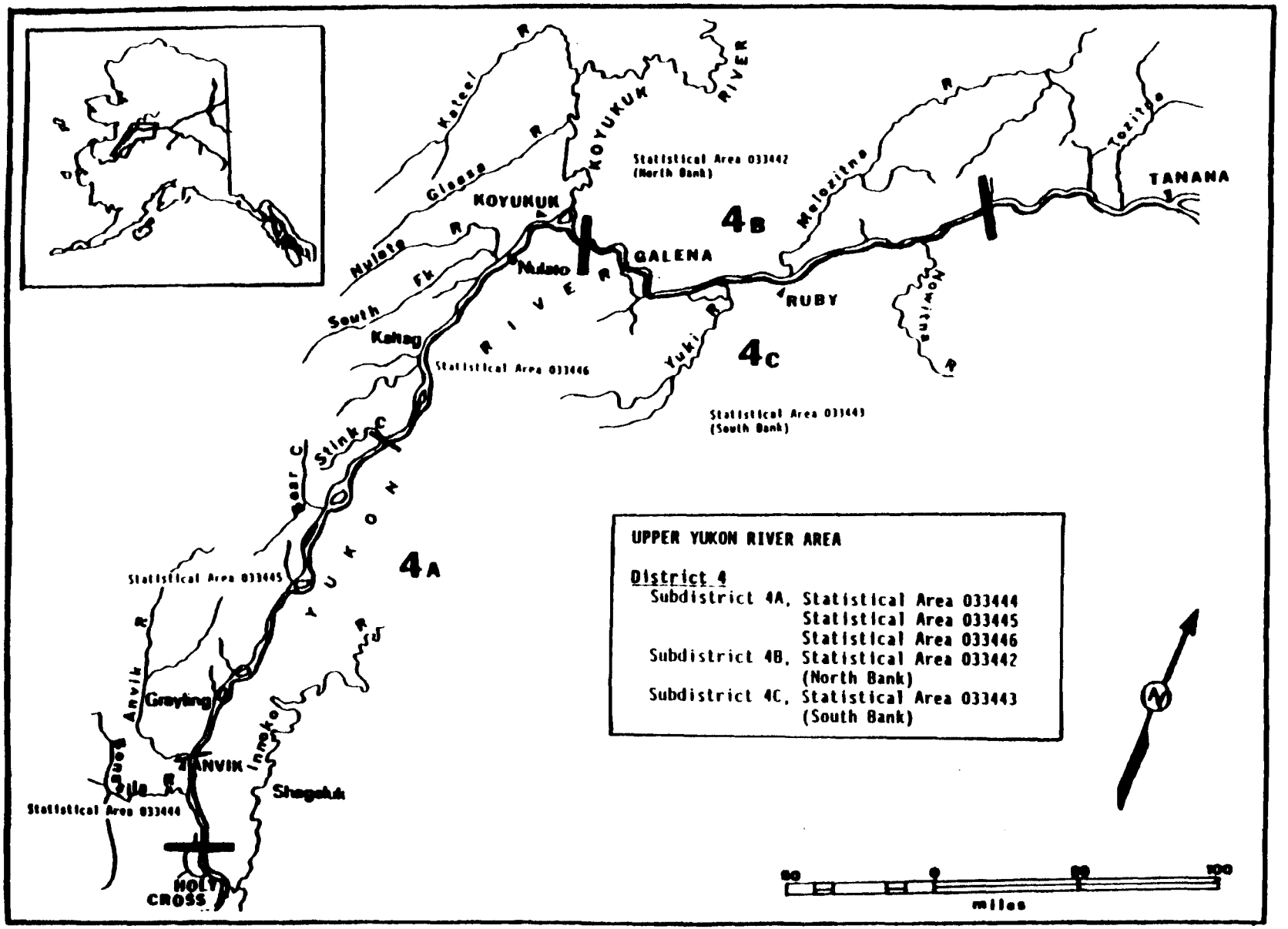

Figure 9. Map of District 4, Yukon management area showing statistical areas, 1992.

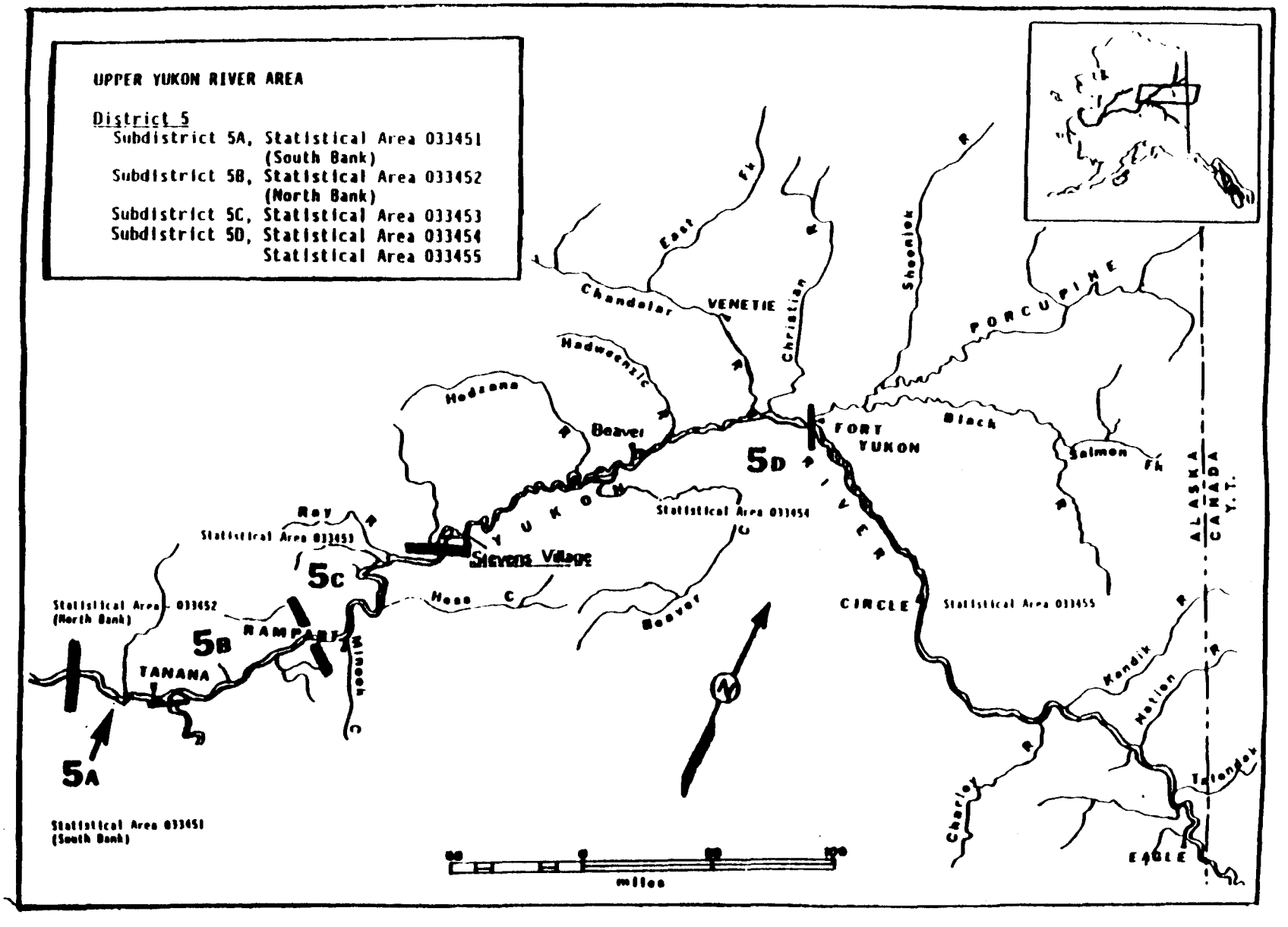

Figure 10. Map of District 5, Yukon management area showing statistical areas, 1992.

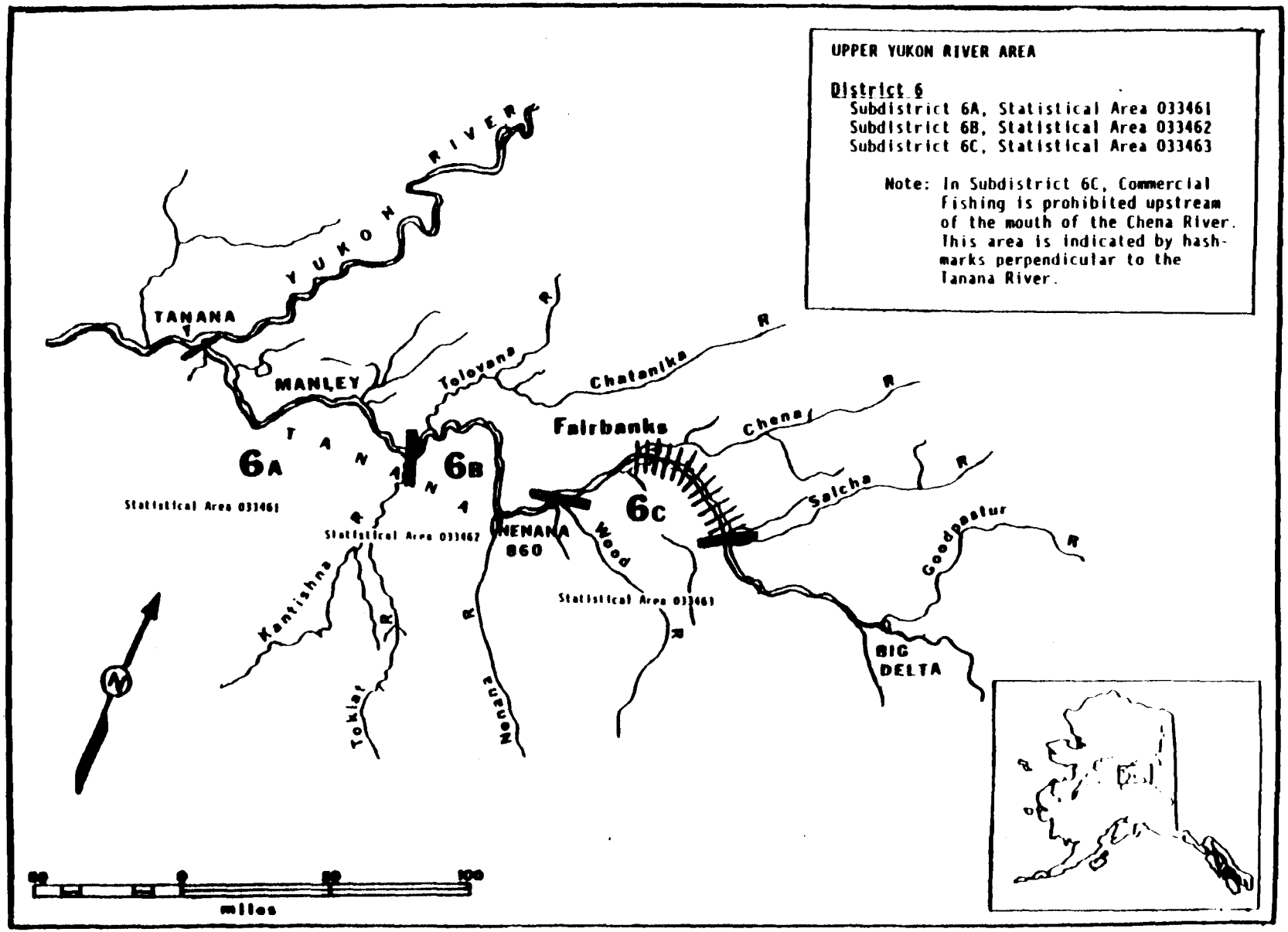

Figure 11. Map of District 6, Yukon management area showing statistical areas, 1992.

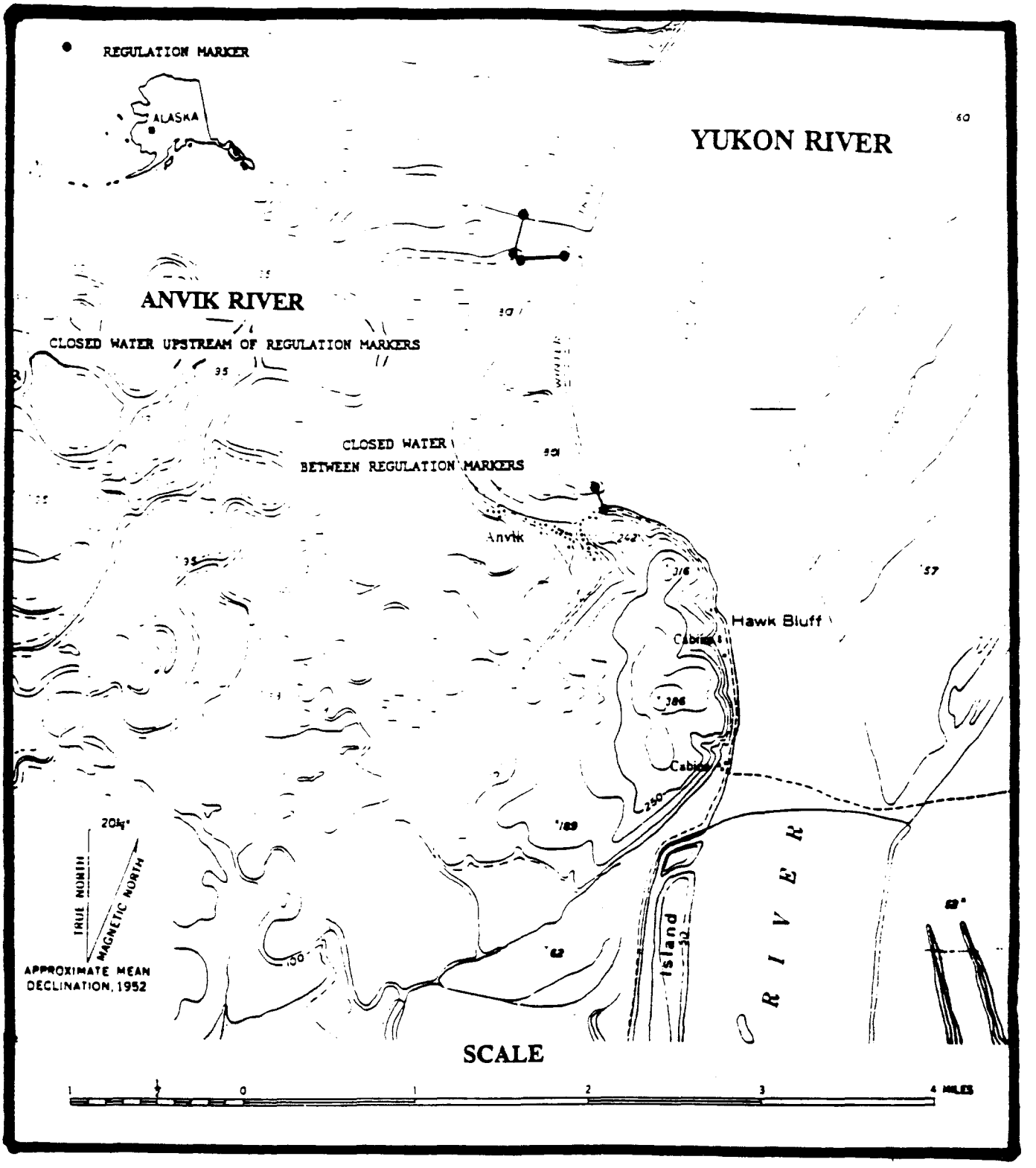

Figure 12. Map of closed waters of Anvik River mouth showing location of department regulation markers, 1992.

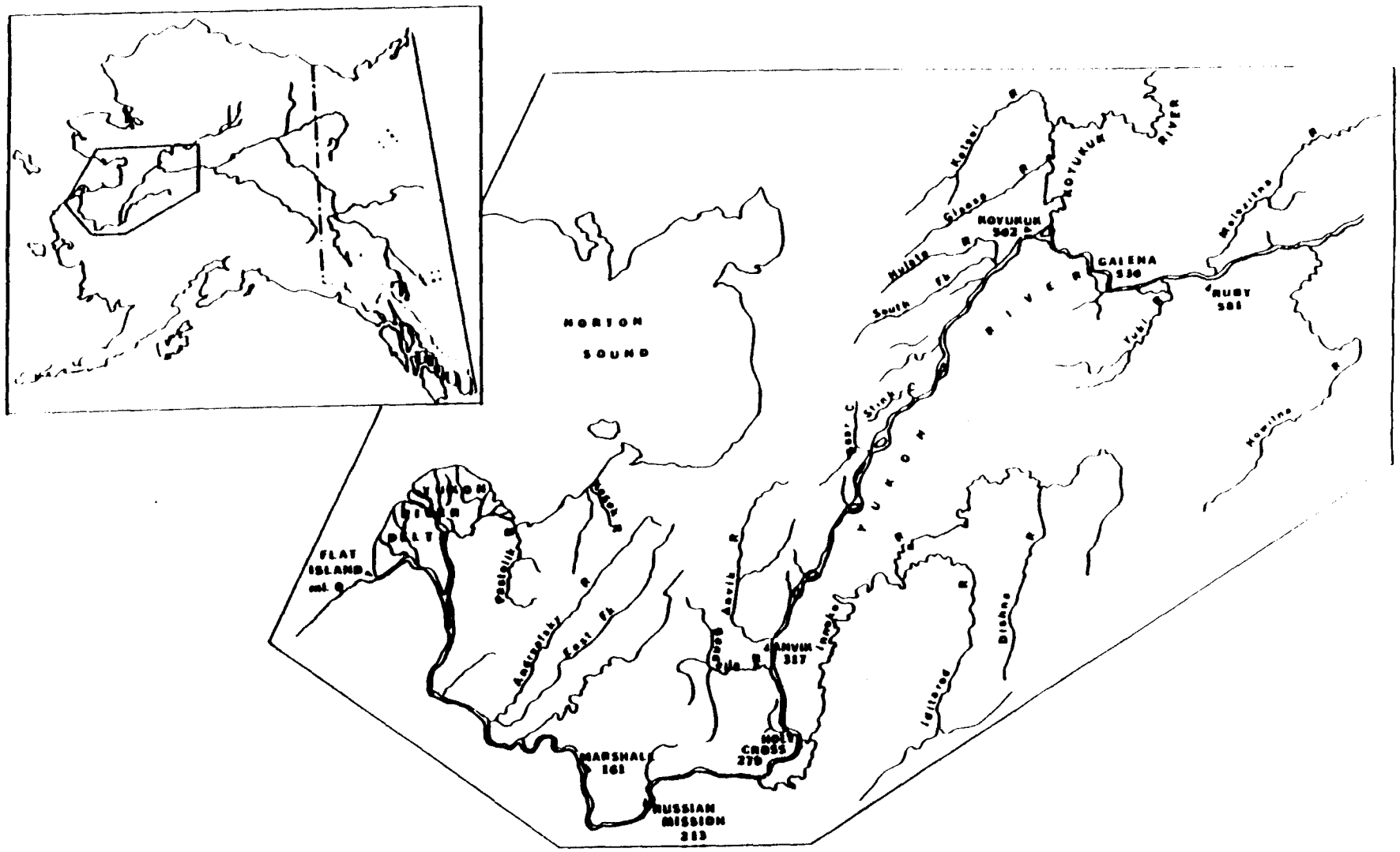

Figure 13. The lower Yukon River drainage.

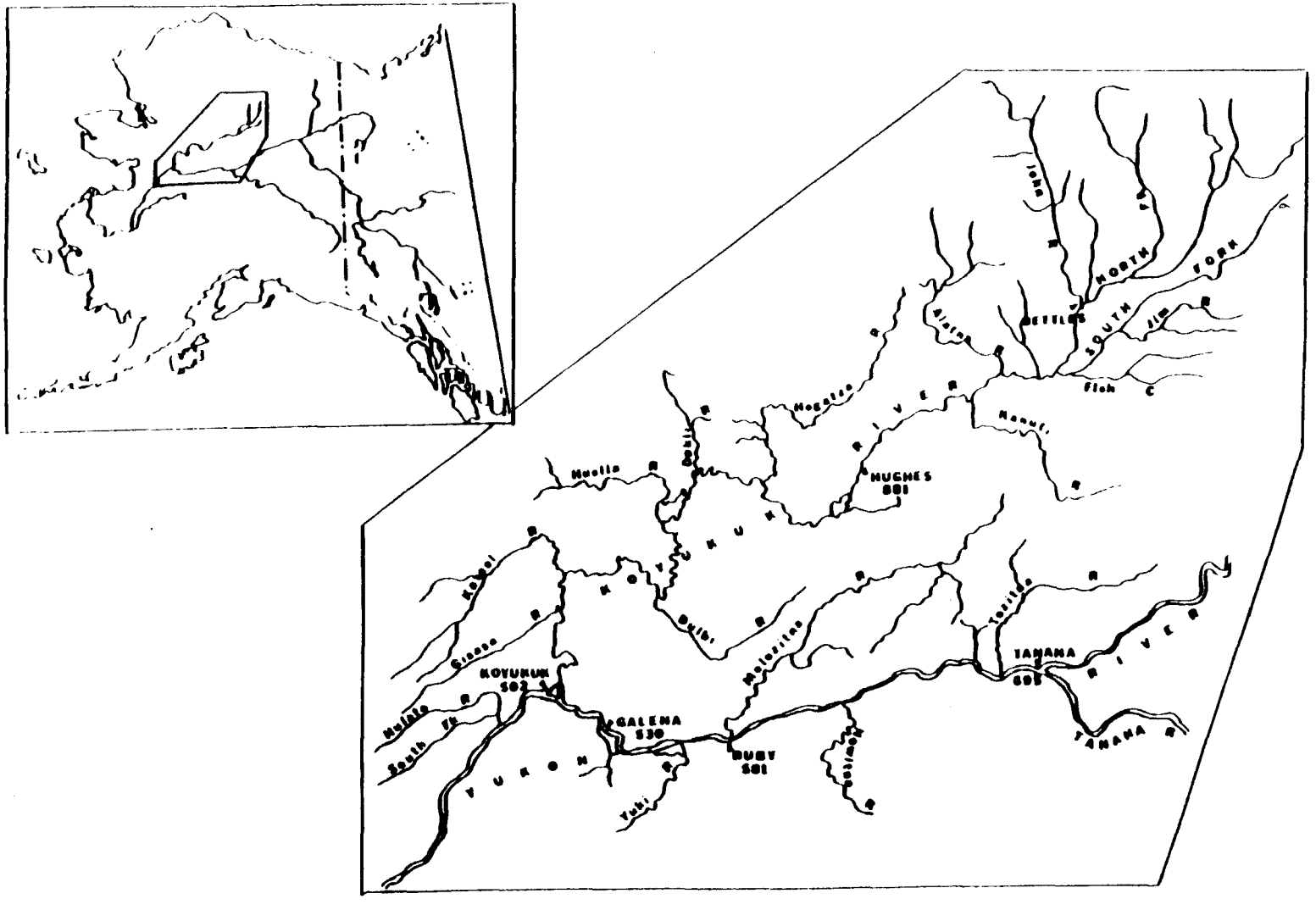

Figure 14. The Koyukuk River drainage.

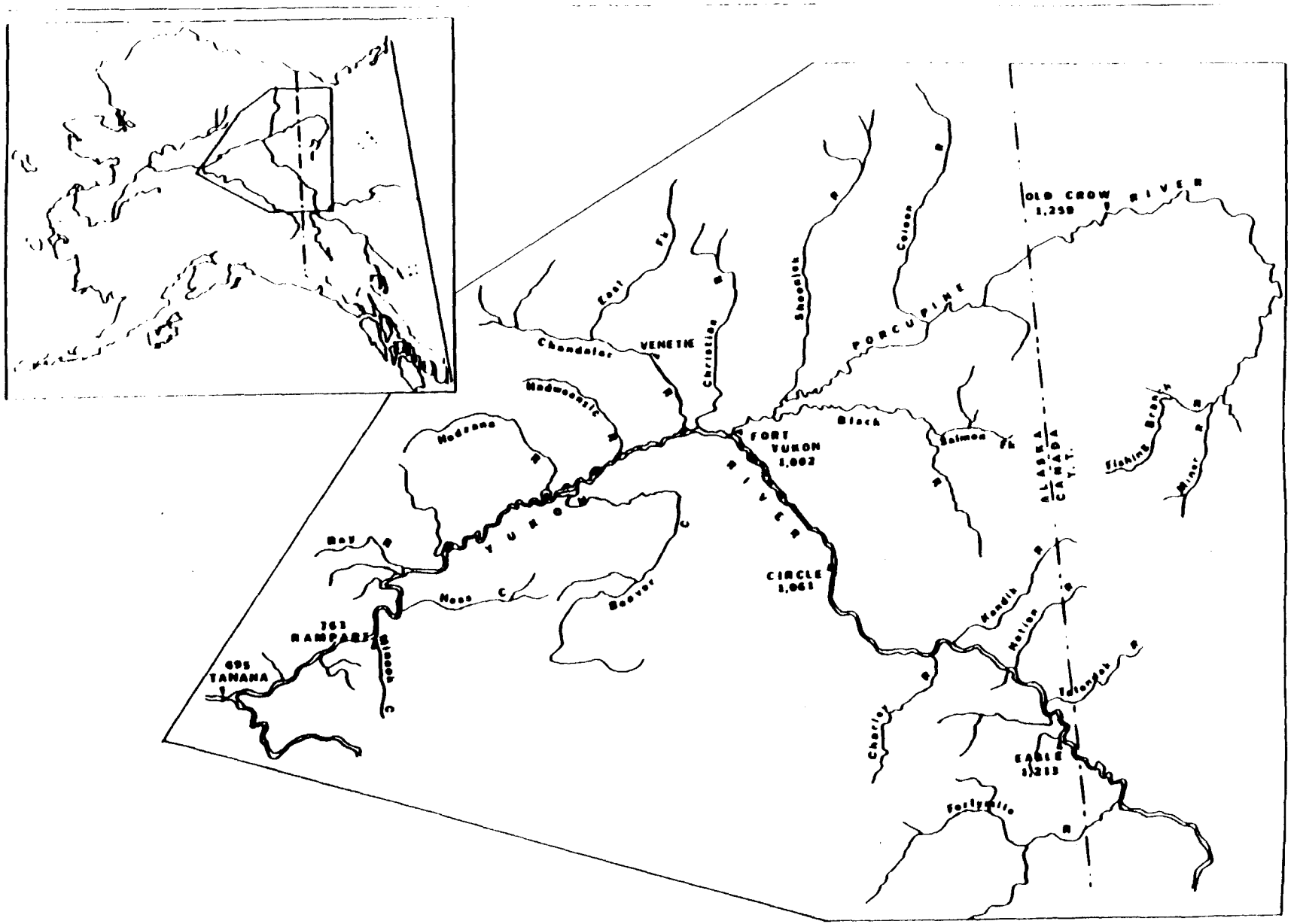

Figure 15. The middle Yukon River and Porcupine River drainages.

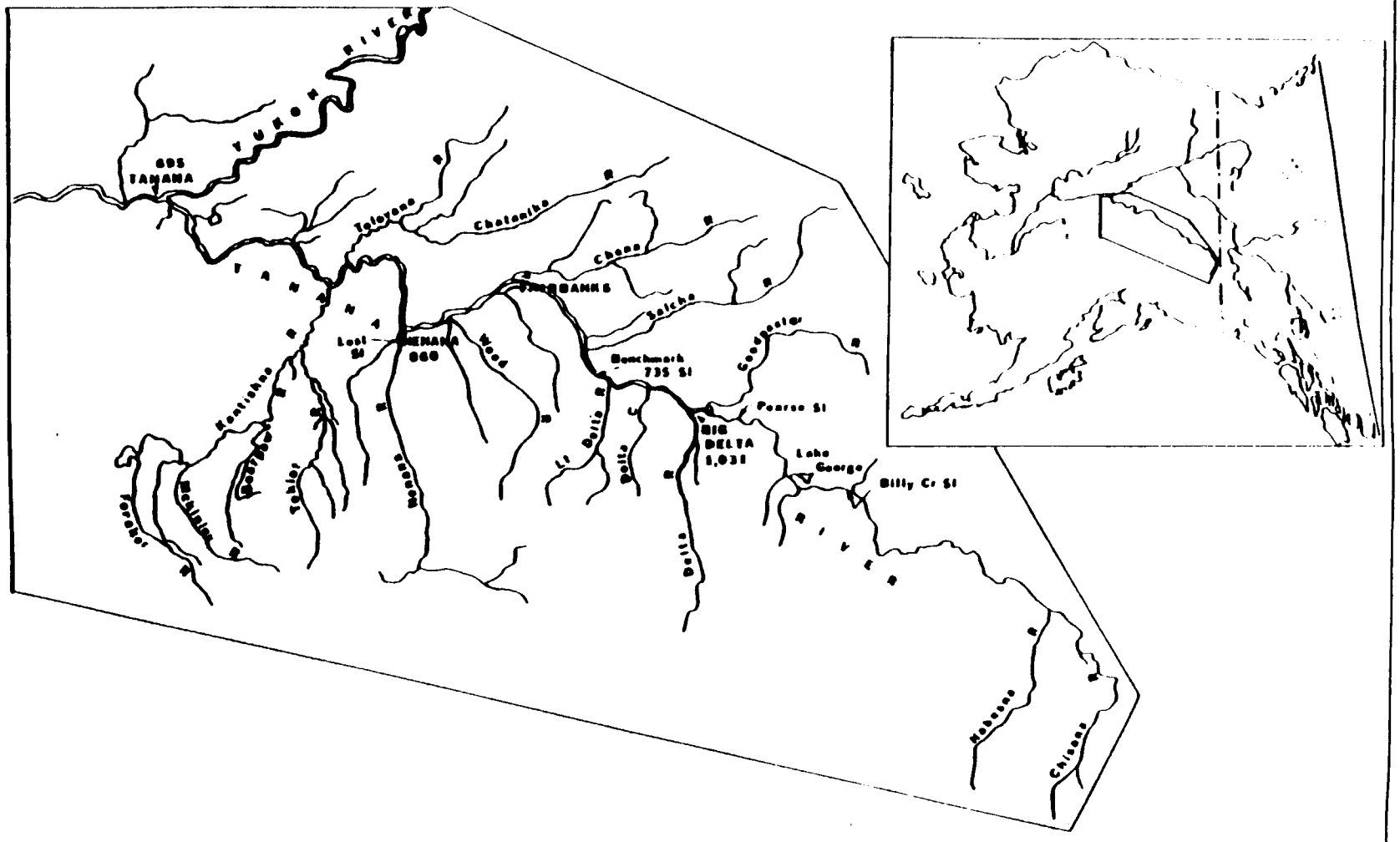

Figure 16. The Tanana River drainage.

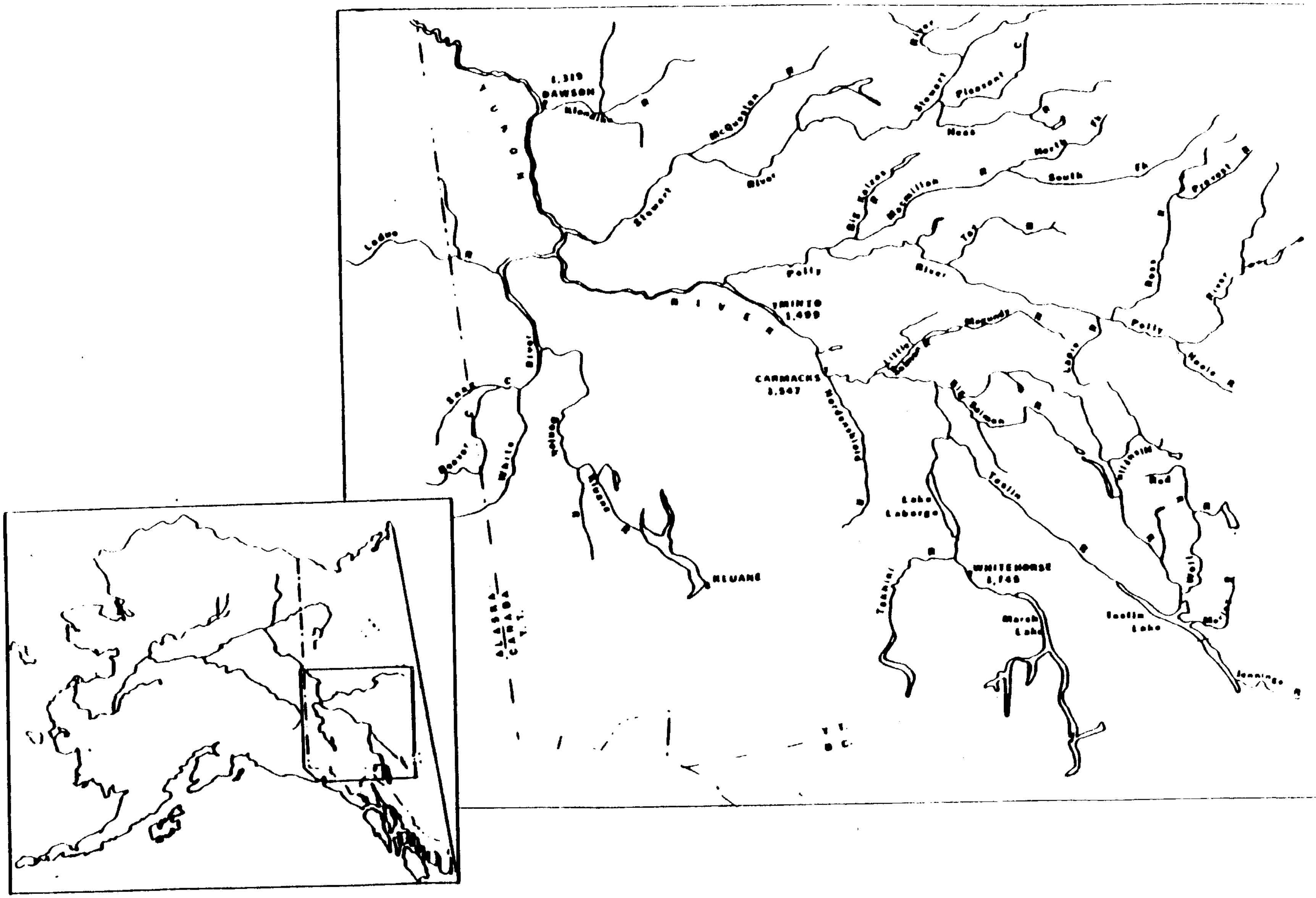

Figure 17. The upper Yukon River drainage.

SUBSISTENCE

APPENDIX A

SUBSISTENCE SALMON FISHERY

Appendix A.1. Estimated Yukon River chinook salmon subsistence harvest in numbers of fish by village, 1981 1992. Blanks indicate harvest information was not collected. a

Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983 1987 Average	1988 1992 Average
Scammon Bay							838	489 b	2 b			948		288
Hooper Bay							2,783	1,099 b	14 b			503		323
Bering Sea Coast Subtotal							3,621	1,588	16			1,451		811
Sheldon Pt.	163	79	1,021	802	143	592	1,173	302	165	756	445	388	746	411
Alakanuk	423	336	1,582	1,028	517	1,027	1,180	738	820	871	1,044	623	1,067	819
Emmonak	1,021	1,328	2,436	2,099	1,382	1,754	2,518	1,786	1,598	1,873	1,311	2,336	2,038	1,781
Kotlik	675	568	1,224	695	1,029	1,902	2,407	1,112	1,982	3,119	3,125	1,794	1,451	2,226
Mouth to Anuk River Subtotal	2,282	2,311	6,263	4,624	3,071	5,275	7,278	3,938	4,565	6,619	5,925	5,141	5,302	5,238
Mt. Village	811	218	1,875	1,217	672	1,367	2,252	740	2,001	1,792	1,171	1,249	1,477	1,391
Pitkas Pt./St. Marys	1,380	985	2,432	2,663	778	1,717	2,457	1,378	2,184	2,476	2,488	2,604	2,009	2,226
Pilot Station	399	428	2,703	1,116	896	1,452	2,593	674	1,498	3,786	2,681	1,818	1,752	2,091
Marshall	990	478	2,055	2,176	1,122	1,947	2,564	1,031	1,464	1,492	1,277	1,403	1,973	1,333
Anuk River to Owl Slough Subtotal	3,580	2,109	9,065	7,172	3,468	6,483	9,866	3,823	7,147	9,546	7,617	7,074	7,211	7,041
Russian Mission	1,689	1,628	2,634	1,899	974	1,747	2,036	1,850	2,367	1,694	1,349	1,282	1,858	1,708
Holy Cross	2,312	1,731	2,276	2,456	2,368	2,505	2,625	2,593	2,379	2,337	1,649	3,491	2,446	2,490
Owl Slough to Bonasila R. Subtotal	4,001	3,359	4,910	4,355	3,342	4,252	4,661	4,443	4,746	4,031	2,998	4,773	4,304	4,198
Lower Yukon Total	9,863	7,779	20,238	16,151	9,881	16,010	25,426	13,792	16,474	20,196	16,540	18,439	16,817	17,088
Anvik	191	354	744	576	405	959	428	211	418	481	619	389	622	424
Grayling	222	294	951	879	903	1,837	1,322	1,571	1,082	144	874	1,074	1,178	949
Kaltag	179	344	652	487	669	1,080	1,117	1,168	1,306	2,244	1,866	1,084	801	1,534
Nulato	1,117	811	1,135	966	3	1,835	1,573	1,986	2,079	2,788	2,500	1,596	1,314	2,190
Koyukuk	541	493	966	1,009	194	569	609	711	1,003	876	885	510	669	797
Galena	570	735	1,477	1,226	1,329	1,046	1,270	1,982	1,374	3,134	2,574	1,870	1,270	2,187
Ruby/Kokrines	964	1,168	2,346	1,107	1,657	1,263	927	1,402	1,016	811	971	498	1,460	940
Bonasila R. to Illinois Cr. Subtotal	3,784	4,199	8,271	6,250	6,220	8,589	7,246	9,031	8,278	10,478	10,289	7,021	7,315	9,019
Shageluk Innoko River Subtotal	10					53	47	104	32	62	189	218	20	121
Huslia	61	125	459	169	144	82	182	89	177	198	198	751	207	283
Hughes	402	479	318	856	778	296	177	29	181	90	146	29	485	95
Allakaket/Alatna c	185	274	706	375	283	563	309	366	438	356	451	437	447	410
Bettles									0	0	16	53		
Koyukuk River Subtotal	648	878	1,483	1,400	1,205	941	668	484	796	644	811	1,270	1,139	801
District 4 Subtotal	4,442	5,077	9,754	7,650	7,425	9,583	7,961	9,619	9,106	11,184	11,289	8,509	8,475	9,941

-Continued-

Appendix A.1. (page 2 of 2)

Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983-1987 Average	1988-1992 Average
Tanana	2,517	2,230	5,547	2,682	1,248	1,672	4,021	3,537	3,008	2,284	2,483	2,477	3,034	2,758
Rampart	488	887	1,070	876	1,302	1,700	2,815	3,145	3,177	1,481	988	2,802	1,553	2,319
Fairbanks (permits) d e							613	108	335	420	982	1,394	123	648
Stevens Village	2,387	3,745	5,203	4,676	4,628	4,601	2,076	2,845	3,101	1,295	2,035	1,887	4,237	2,233
Birch Creek								0 b	0		196	44		48
Beaver	552	250	220	553	506	708	466	940	1,694	721	713	1,564	491	1,126
Ft. Yukon	2,794	1,894	1,887	3,608	2,900	3,083	3,950	2,245	4,898	4,051	5,585	4,122	3,086	4,180
Circle/Central (permits)	728	969	648	545	2,259	2,219	1,614	1,125	322	1,951	1,871	1,752	1,457	1,404
Eagle (permits) e	3,782	2,864	2,183	1,998	2,247	1,973	2,020	1,544	843	1,742	1,193	1,040	2,084	1,272
Other (permits) f g								390	371	615	374	571		464
Illinois Cr. to U.S. Can. Border Subtotal	13,248	12,839	16,758	14,938	15,090	15,956	17,575	15,879	17,749	14,560	16,420	17,653	16,063	16,452
Venetie	52	20	22	51		32	13	121	88	29	9	35	24	56
Chalkyitsik						0	0	0	0	0	0	3	0	1
Chandalar/Black Rivers Subtotal	52	20	22	51		32	13	121	88	29	9	38	24	57
District 5 Subtotal	13,300	12,859	16,780	14,989	15,090	15,988	17,588	16,000	17,837	14,589	16,429	17,691	16,087	16,509
Manley g	367	386	990	282	744	621	40	91	651	1,169	401	551	535	573
Minto g	344	411	275	440	1,386	350	374	378	12	100	134	142	565	153
Nenana g	974	1,195	966	2,556	4,919	2,093	3,151	4,097	443	1,265	1,599	1,267	2,737	1,734
Fairbanks (permits) e h	400	451	475	321	326	637	531	0	0	84	378	402	458	173
Other g i								0	5	0	3	76		17
Tanana River Subtotal	2,085	2,443	2,706	3,599	7,375	3,701	4,096	4,566	1,111	2,618	2,515	2,438	4,295	2,650
Upper Yukon Total	19,827	20,379	29,240	26,238	29,890	29,272	29,645	30,185	28,054	28,391	30,233	28,638	28,857	29,100
Alaska Total	29,690	28,158	49,478	42,389	39,771	45,282	55,071	43,977	44,528	48,587	46,773	47,077	45,674	46,188

a 1961-1980 data available from 1981 Yukon Area Annual Management Report.
b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.
c Alatna combined with Allakaket.
d Catches by Fairbanks subsistence permit holders that fished in the Yukon River near the Yukon River bridge crossing.
e Salmon catches expanded for permits not returned (1981-1987). Beginning in 1988, reported harvest is from returned permits only.
f Other permit holders that fished in District 5 but did not reside in the villages listed.
g Permits required beginning in 1988. Reported harvest is from returned permits only.
h Catches by Fairbanks subsistence permit holders that fished in the Tanana River.
i Other permit holders that fished in District 6 but did not reside in the villages listed.

Appendix A.2. Estimated Yukon River summer chum salmon subsistence harvest in numbers of fish by village, 1981-1992. Blanks indicate harvest information was not collected. a

Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983-1987 Average	1988-1992 Average
Scammon Bay							6,200	8,171 b	48 b			3,795		2,403
Hooper Bay							23,468	23,059 b	2,293 b			12,900		7,650
Bering Sea Coast Subtotal							29,668	31,230	2,341			16,695		10,053
Sheldon Pt.	2,495	885	1,690	2,701	1,717	4,755	2,460	2,589	4,314	1,458	2,226	1,415	2,665	2,400
Alakanuk	2,263	5,225	9,347	10,095	7,702	11,280	9,913	6,992	12,108	7,265	8,058	9,951	9,667	8,875
Emmonak	4,907	8,426	8,401	10,053	8,742	12,618	11,177	10,528	22,985	15,215	8,401	12,296	10,198	13,885
Kotlik	1,645	3,916	5,241	5,610	6,188	10,201	7,210	8,825	13,437	13,061	9,105	9,577	6,890	10,801
Mouth to Anuk River Subtotal	11,310	18,452	24,679	28,459	24,349	38,854	30,760	28,934	52,844	36,999	27,790	33,239	29,420	35,961
Mt. Village	3,383	3,854	10,183	8,665	6,745	11,468	12,456	9,248	15,869	9,950	4,743	7,864	9,903	9,535
Pitkas Pt./St. Marys	4,699	9,405	8,569	11,019	7,556	14,986	12,402	10,501	13,124	9,515	9,284	8,555	10,906	10,196
Pilot Station	2,859	2,135	4,683	3,236	3,133	7,870	4,279	4,242	6,783	6,698	4,634	6,236	4,640	5,719
Marshall	3,277	3,048	3,961	4,076	2,361	7,172	3,997	4,796	3,927	2,290	2,042	2,076	4,313	3,026
Anuk River to Owl Slough Subtotal	14,218	18,442	27,396	26,996	19,795	41,496	33,134	28,787	39,703	28,453	20,703	24,731	29,763	28,475
Russian Mission	2,628	1,419	1,576	2,045	1,817	3,136	2,283	2,794	2,229	2,146	837	3,331	2,171	2,267
Holy Cross	2,301	4,421	3,033	5,124	1,870	2,392	1,878	3,036	1,753	857	1,028	1,001	2,859	1,535
Owl Slough to Bonasila R. Subtotal	4,929	5,840	4,609	7,169	3,687	5,528	4,161	5,830	3,982	3,003	1,865	4,332	5,031	3,802
Lower Yukon Total	30,457	42,734	56,684	62,624	47,831	85,878	97,723	94,781	98,870	68,455	50,358	78,997	64,214	78,292
Anvik	26,588	27,087	20,592	22,433	24,950	41,581	28,887	12,607	410	2,032	876	1,142	27,689	3,413
Grayling	15,836	47,006	22,958	28,060	23,937	35,284	21,264	22,634	14,570	1,430	8,094	3,605	26,301	10,067
Kaltag	28,121	37,125	27,674	1,800	26,965	24,667	28,550	3,592	632	6,956	2,287	1,204	21,931	2,934
Nulato	7,534	19,740	11,130	232	16,315	10,349	16,299	10,201	200	502	159	889	10,865	2,390
Koyukuk	11,788	18,149	14,440	5,215	9,666	6,250	9,718	284	381	283	2,326	1,130	9,058	881
Galena	15,089	20,434	5,789	19,480	16,212	6,618	11,776	7,413	6,216	1,760	3,493	3,232	11,975	4,423
Ruby/Kokrines	5,542	7,539	8,804	4,282	13,556	7,883	8,786	4,010	1,844	351	1,352	2,420	8,662	1,995
Bonasila R. to Illinois Cr. Subtotal	110,498	177,080	111,387	81,502	131,601	132,632	125,280	60,741	24,253	13,314	18,587	13,622	116,480	26,103
Shageluk Innoko River Subtotal	2,501					6,710	8,015	8,779	8,842	6,518	3,680	5,267	2,945	6,617
Huslia	12,550	6,809	18,588	12,550	13,430	10,516	11,042	14,895	10,005	7,368	7,857	13,670	13,225	10,759
Hughes	6,196	8,409	1,905	14,744	12,788	7,280	4,369	2,445	3,687	509	1,257	1,625	8,217	1,905
Allakaket/Alatna c	7,827	7,687	4,165	4,169	7,564	8,934	8,700	8,524	2,915	5,319	7,413	6,858	6,706	6,206
Bettles									75	24	155	37	0	58
Koyukuk River Subtotal	26,573	22,905	24,658	31,463	33,782	26,730	24,111	25,864	16,682	13,220	16,682	22,190	28,149	18,928
District 4 Subtotal	139,572	199,985	136,045	112,965	165,383	166,072	157,406	95,384	49,777	33,052	38,949	41,079	147,574	51,648

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Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983-1987 Average	1988-1992 Average
Tanana	7,873	3,214	5,552	10,620	11,148	11,646	10,876	13,972	7,756	5,905	2,779	4,553	9,968	6,993
Rampart	1,946	0	3,698	7,650	5,133	1,450	2,434	3,383	28	58	20	4,494	4,073	1,597
Fairbanks (permits) d e	4,501	2,056	2,194	4,065	2,027	1,382	1,493	6	7	25	1,068	706	2,232	362
Stevens Village	2,576	666	5,051	5,952	3,046	3,116	1,446	865	2,375	1,671	1,385	460	3,722	1,351
Beaver	146	534	100	167	263	0	657	214	124	108	2,355	12	237	563
Ft. Yukon	8,149	1,434	7,142	3,032	4,410	3,264	1,178	7,717	1,760	145	11,974	1,700	3,805	4,659
Circle/Central (permits)	2,009	0	73	0	930	465	2,087	2,013	55	1,267	51	356	711	748
Eagle (permits) e	108	1,887	133	49	39	566	417	118	6	361	607	23	241	223
Other (permits) f g								2,015	219	187	32	291		549
Illinois Cr. to U.S. Can. Border Subtotal	27,308	9,791	23,943	31,535	26,996	21,889	20,588	30,303	12,330	9,727	20,271	12,595	24,990	17,045
Venetie	0	0	0	0		0	0	701	30	0	3,393	0	0	825
Chalkyitsik						0	0	327	0	90	500	17	0	187
Chandalar/Black Rivers Subtotal	0	0	0	0		0	0	1,028	30	90	3,893	17	0	1,012
District 5 Subtotal	27,308	9,791	23,943	31,535	26,996	21,889	20,588	31,331	12,360	9,817	24,164	12,612	24,990	18,057
Manley g	2,972	971	7,245	1,260	856	604	267	960	1,918	2,250	1,716	850	2,046	1,539
Minto g	367	808	7,414	5,042	5,291	1,587	1,383	850	0	500	748	625	4,143	545
Nenana g	4,369	3,972	6,779	13,962	15,825	10,827	21,214	2,746	363	1,383	1,499	6,372	13,721	2,473
Fairbanks e h	3,239	2,708	2,276	3,177	2,646	4,031	1,461	0	0	152	1,096	1,342	2,718	518
Other g i								0	0	0	10	315	0	65
Tanana River Subtotal	10,947	8,459	23,714	23,441	24,618	17,049	24,325	4,556	2,281	4,285	5,059	9,504	22,629	5,139
Upper Yukon Total	177,827	218,235	183,702	167,941	216,997	205,010	202,319	131,271	64,418	47,154	68,172	63,195	195,194	74,844
Alaska Total	208,284	260,969	240,386	230,565	264,828	290,888	300,042	226,052	163,288	115,609	118,530	142,192	259,408	153,136

a 1961-1980 chum salmon data available from 1981 Yukon Annual Management Report.
b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.
c Alatna combined with Allakaket.
d Catches by Fairbanks subsistence use permit holders that fished in the Yukon River near the Yukon River bridge crossing.
e Salmon catches expanded for permits not returned (1981-1987). Beginning in 1988, reported harvest is from returned permits only.
f Other permit holders that fished in District 5 but did not reside in the villages listed.
g Permits required beginning in 1988. Reported harvest is from returned permits only.
h Catches by Fairbanks subsistence use permit holders that fished in the Tanana River.
i Other permit holders that fished in District 6 but did not reside in the villages listed.

Appendix A.3. Estimated Yukon River fall chum salmon subsistence harvest in numbers of fish by village, 1981-1992. Blanks indicate harvest information was not collected. May include commercial related harvest to produce roe sold. a

Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983-1987 Average	1988-1992 Average
Scammon Bay							117	551 b	10 b			79		128
Hooper Bay							105	1,711 b	146 b			127		397
Bering Sea Coast Subtotal							222	2,262	156			206		525
Sheldon Pt.	490	886	233	555	713	259	882	289	586	102	84	490	528	310
Alakanuk	4,913	1,336	903	1,219	2,603	2,030	3,748	1,194	430	267	193	401	2,101	497
Emmonak	4,375	4,458	2,715	3,329	4,539	2,746	8,160	1,792	840	2,353	2,027	1,628	4,298	1,728
Kotlik	5,762	3,336	4,387	3,782	5,420	3,965	5,677	2,200	3,058	2,613	1,631	2,697	4,646	2,440
Mouth to Anuk River Subtotal	15,540	10,016	8,238	8,885	13,275	9,000	18,467	5,475	4,914	5,335	3,935	5,216	11,573	4,975
Mt. Village	3,794	2,810	4,065	3,497	3,591	2,947	4,897	1,880	4,641	1,566	1,473	1,052	3,799	2,122
Pitkas Pt./St. Marys	3,322	2,386	3,138	3,927	3,315	5,401	3,966	2,533	1,970	956	2,202	77	3,949	1,548
Pilot Station	1,764	1,568	1,302	832	1,957	1,663	583	1,372	1,872	1,941	1,062	3,526	1,267	1,955
Marshall	2,890	2,747	1,836	3,138	2,681	3,472	4,008	2,815	1,532	1,724	891	2,727	3,027	1,938
Anuk River to Owl Slough Subtotal	11,770	9,511	10,341	11,394	11,544	13,483	13,454	8,600	10,015	6,187	5,628	7,382	12,043	7,562
Russian Mission	497	630	773	701	1,266	637	1,255	1,151	308	878	425	648	926	682
Holy Cross	2,396	1,029	2,090	1,373	1,024	1,148	1,598	596	711	1,178	190	845	1,447	704
Owl Slough to Bonasila R. Subtotal	2,893	1,659	2,863	2,074	2,290	1,785	2,853	1,747	1,019	2,056	615	1,493	2,373	1,386
Lower Yukon Total	30,203	21,186	21,442	22,353	27,109	24,268	34,996	18,084	16,104	13,578	10,178	14,297	25,989	14,448
Anvik	2,167	4,088	902	720	2,125	913	394	136	168	583	452	894	1,011	447
Grayling	890	2,972	3,847	1,950	3,106	4,204	4,750	1,760	830	1,405	3,616	2,993	3,571	2,121
Kaltag	2,329	812	2,833	1,330	1,570	2,024	7,474	2,293	1,654	2,327	2,834	2,522	3,046	2,326
Nulato	621	217	3,159	1,675	4,240	1,762	2,200	1,673	2,436	3,546	1,637	1,910	2,607	2,240
Koyukuk	700	1,355	1,120	1,560	798	2,195	2,492	587	2,460	860	2,761	2,817	1,633	1,897
Galena	3,142	2,164	4,259	7,270	4,476	4,819	10,509	4,308	6,436	3,202	5,525	2,393	6,267	4,373
Ruby/Kokrines	7,984	6,662	12,319	8,505	6,717	7,101	11,000	5,171	6,599	3,352	2,856	4,499	9,128	4,495
Bonasila R. to Illinois Cr. Subtotal	17,833	18,270	28,439	23,010	23,032	23,018	38,819	15,928	20,583	15,275	19,681	18,028	27,264	17,899
Shageluk Innoko River Subtotal	150				0	370	434	0	4	0	0	865	161	174
Huslia	119	102	3,528	6,306	276	808	585	1,697	1,728	846	411	1,286	2,301	1,194
Hughes	611	1,231	327	1,280	1,260	1,422	586	311	260	70	270	325	975	247
Allakaket/Alatna c	1,410	716	1,915	556	707	878	1,477	443	1,969	3,050	513	1,579	1,107	1,511
Bettles									0	0	0	14		3
Koyukuk River Subtotal	2,140	2,049	5,770	8,142	2,243	3,108	2,648	2,451	3,957	3,966	1,194	3,204	4,382	2,954
District 4 Subtotal	20,123	20,319	34,209	31,152	25,275	26,496	41,901	18,379	24,544	19,241	20,875	22,097	31,807	21,027

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Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983-1987 Average	1988-1992 Average
Tanana	30,820	31,470	41,630	42,690	28,113	32,049	41,825	55,998	40,845	41,145	40,868	19,365	37,261	39,644
Rampart	5,370	5,495	5,627	4,395	19,619	3,950	5,092	3,600	2,472	10,818	5,801	5,701	7,737	5,678
Fairbanks (permits) d e	7,527	9,272	12,865	12,920	13,874	11,708	5,264	410	7	82	2,022	2,491	11,326	1,002
Stevens Village	8,356	7,392	3,502	4,932	11,679	4,150	7,538	1,451	6,633	3,857	2,481	150	6,360	2,914
Beaver	735	1,878	6,004	0	1,761	3,321	5,750	96	7,242	757	7	361	3,367	1,693
Ft. Yukon	16,143	1,926	3,967	7,525	12,719	8,543	15,200	2,766	27,790	11,627	7,467	2,284	9,591	10,387
Circle/Central (permits)	5,219	290	3,687	3,107	4,096	3,609	7,691	1,339	1,985	6,804	6,413	6,379	4,438	4,584
Eagle (permits) e	30,997	13,255	20,021	18,519	25,264	16,061	19,678	7,739	5,489	8,027	7,985	5,630	19,909	6,974
Other (permits) d g								1,500	41	529	200	0		454
Illinois Cr. to U.S. Can. Border Subtotal	105,167	70,978	97,303	94,088	117,125	83,391	108,038	74,899	92,504	83,646	73,244	42,361	99,989	73,331
Venetie	6,400	850	7,800	4,345		3,193	2,774	34	7,977	5,377	758	3,066	3,622	3,442
Chalkyitsik						1,533	2,686	1,068	3,000	1,490	100	274	844	1,186
Chandalar/Black Rivers Subtotal	6,400	850	7,800	4,345		4,726	5,460	1,102	10,977	6,867	858	3,340	4,466	4,629
District 5 Subtotal	111,567	71,828	105,103	98,433	117,125	88,117	113,498	76,001	103,481	90,513	74,102	45,701	104,455	77,960
Manley g	9,419	4,444	11,400	2,196	6,560	5,906	4,267	5,396	17,185	25,860	13,143	7,010	6,066	13,719
Minto g	3,182	3,568	6,489	4,025	4,642	545	5,419	2,560	20	3,652	5,276	3,017	4,224	2,905
Nenana g	10,176	9,034	11,685	13,520	22,901	15,902	26,909	17,103	20,463	12,464	17,932	13,253	18,183	16,243
Fairbanks (permits) e h	3,855	2,518	2,600	2,985	2,860	2,800	0	0	0	309	1,671	1,394	2,249	675
Other g i								3,008	6,143	2,283	2,447	1,039		2,984
Tanana River Subtotal	26,632	19,564	32,174	22,726	36,963	25,153	36,595	28,067	43,811	44,568	40,469	25,713	30,722	36,526
Upper Yukon Total	158,322	111,711	171,486	152,311	179,363	139,766	191,994	122,447	171,836	154,322	135,446	93,511	166,984	135,512
Alaska Total	188,525	132,897	192,928	174,664	206,472	164,034	226,990	140,531	187,940	167,900	145,624	107,808	192,973	149,961

a 1961-1980 chum salmon data available from 1981 Yukon Annual Management Report.
b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.
c Alatna combined with Allakaket.
d Catches by Fairbanks subsistence use permit holders that fished in the Yukon River near the Yukon River bridge crossing.
e Salmon catches expanded for permits not returned (1981-1987). Beginning 1988, reported harvest is from returned permits only.
f Other permit holders that fished in District 5 but did not reside in the villages listed.
g Permits required beginning in 1988. Reported harvest is from returned permits only.
h Catches by Fairbanks subsistence permit holders that fished in the Tanana River.
i Other permits holders that fished in District 6 but did not reside in the villages listed.

Appendix A.4. Estimated Yukon River coho salmon subsistence harvest in numbers of fish by village, 1981-1992. Blanks indicate harvest information was not collected. a

Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1983-1987 Average	1988-1992 Average
Scammon Bay							64	326 b	2 b			31		72
Hooper Bay							69	1,523 b	211 b			28		352
Bering Sea Coast Subtotal							133	1,849	213			59		424
Sheldon Pt.	215	1,770	170	245	49	237	308	169	487	78	35	441	202	242
Alakanuk	508	1,313	438	776	894	1,518	1,116	634	334	156	391	966	948	496
Emmonak	1,295	4,795	1,290	3,659	1,552	732	3,497	1,578	1,259	1,283	801	666	2,146	1,117
Kotlik	1,751	3,314	1,692	1,415	751	238	1,475	2,008	2,997	1,784	581	3,353	1,114	2,145
Mouth to Anuk River Subtotal	3,769	11,192	3,590	6,095	3,246	2,725	6,396	4,389	5,077	3,301	1,808	5,426	4,410	4,000
Mt. Village	1,055	3,025	2,500	982	1,527	828	2,481	1,314	2,385	1,754	868	1,971	1,664	1,658
Pitkas Pt./St. Marys	1,183	2,783	1,529	2,024	1,113	4,832	1,740	3,147	971	515	1,617	2,771	2,248	1,804
Pilot Station	431	2,644	638	1,114	710	1,514	300	876	379	1,968	553	300	855	815
Marshall	1,067	1,777	1,405	2,946	1,484	1,966	2,373	1,767	1,304	2,107	259	1,545	2,035	1,396
Anuk River to Owl Slough Subtotal	3,736	10,229	6,072	7,066	4,834	9,140	6,894	7,104	5,039	6,344	3,297	6,587	6,801	5,674
Russian Mission	434	156	540	656	276	679	423	604	20	688	396	1,148	515	571
Holy Cross	56	519	377	0	100	102	259	935	517	338	944	105	168	568
Owl Slough to Bonasila R. Subtotal	490	675	917	656	376	781	682	1,539	537	1,026	1,340	1,253	682	1,139
Lower Yukon Total	7,995	22,096	10,579	13,817	8,456	12,646	14,105	14,881	10,866	10,671	6,445	13,325	11,894	11,238
Anvik	385	58	250	40	272	296	405	97	40	236	347	202	253	184
Grayling	172	1,014	1,275	97	0	860	599	692	969	10	1,363	859	566	779
Kaltag	102	62	0	0	0	229	0	0	792	501	1,260	2,105	46	932
Nulato	140	76	0	0	510	69	85	234	276	845	75	435	133	373
Koyukuk	142	187	40	200	120	154	894	10	110	162	307	1,877	282	493
Galena	333	347	759	452	1,072	465	1,349	1,029	415	572	422	1,398	819	767
Ruby/Kokrines	746	867	1,122	1,631	1,719	339	0	2,169	1,069	974	410	1,299	962	1,184
Bonasila R. to Illinois Cr. Subtotal	2,020	2,611	3,446	2,420	3,693	2,412	3,332	4,231	3,671	3,300	4,184	8,175	3,061	4,712
Shageluk Innoko River Subtotal	20					173	72	128	0	0	0	296	49	85
Huslia	146	17	475	12	0	31	124	201	150	235	150	233	128	194
Hughes	42	0	0	400	138	0	0	104	91	43	9	21	108	54
Allakaket/Alatna c	31	324	25	35	118	15	23	178	118	36	108	0	43	88
Bettles									0	0	0	0		0
Koyukuk River Subtotal	219	341	500	447	256	46	147	483	359	314	267	254	279	335
District 4 Subtotal	2,259	2,952	3,946	2,867	3,949	2,631	3,551	4,842	4,030	3,614	4,451	8,725	3,389	5,132

-Continued-

Appendix A.4. (page 2 of 2)

Village	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1982-1987 Average	1988-1992 Average
Tanana	1,373	3,260	2,312	16,898	7,384	4,691	6,680	16,922	5,518	8,580	4,448	11,406	7,593	9,375
Rampart	169	0	47	120	513	110	81	842	87	591	58	75	174	331
Fairbanks (permits) d e	6	20	78	254	13	709	6	6	0	5	8	34	212	11
Stevens Village	95	23	0	145	182	67	0	604	208	479	0	20	79	262
Beaver	0	0	0	0	1	124	0	164	774	172	1	398	25	302
Ft. Yukon	70	125	11	33	3	118	41	370	406	727	380	341	41	445
Circle/Central (permits) e	0	0	0	0	0	37	0	101	1	206	5	54	7	73
Eagle (permits) e	0	0	0	17	2	6	0	0	0	0	0	3	5	1
Other (permits) f g								0	165	450	12	0		125
Illinois Cr. to U.S. Can. Border Subtotal	1,713	3,428	2,448	17,467	8,098	5,862	6,808	19,009	7,159	11,210	4,912	12,331	8,137	10,924
Venetie	0	0	0	0		0	17	0	2	348	12	45	3	81
Chalkyitsik						8	2	801	26	4	7	0	2	168
Chandalar/Black River Subtotal	0	0	0	0		8	19	801	28	352	19	45	5	249
District 5 Subtotal	1,713	3,428	2,448	17,467	8,098	5,870	6,827	19,810	7,187	11,562	4,931	12,376	8,142	11,173
Manley g	3,723	837	1,350	1,566	1,926	538	1,467	2,066	4,391	7,574	6,361	4,725	1,369	5,023
Minto g	267	1,500	0	800	1,144	1,058	671	1,710	0	818	526	614	735	734
Nenana g	3,356	3,078	4,352	10,270	7,614	10,090	19,592	14,135	7,193	7,381	10,171	8,895	10,384	9,555
Fairbanks (permits) e h	1,915	2,003	1,230	2,149	1,077	1,637	0	0	0	66	2,501	2,281	1,219	2,433
Other g i								4,450	2,161	1,774	2,002	1,039	0	1,944
Tanana River Subtotal	9,261	7,418	6,932	14,785	11,761	13,323	21,730	22,361	13,745	17,613	21,561	17,554	13,706	19,688
Upper Yukon Total	13,233	13,798	13,326	35,119	23,808	21,824	32,108	47,013	24,962	32,789	30,943	38,655	25,237	35,994
Alaska Total	21,228	35,894	23,905	48,936	32,264	34,470	46,213	61,894	35,828	43,460	37,388	51,980	37,131	47,231

a 1961-1980 coho salmon data available from 1981 Yukon Annual Management Report.
b The village was not surveyed, harvest estimates were calculated from calendar and post card replies.
c Alatna combined with Allakaket.
d Catches by Fairbanks subsistence use permit holders that fished in the Yukon River near the Yukon River bridge crossing.
e Salmon catches expanded for permits not returned (1981-1987). Beginning 1988, reported harvest is from returned permits only.
f Other permit holders that fished is District 5 but did not reside in the villages listed.
g Salmon catches expanded for permits not returned in 1987. Beginning in 1988, reported harvest is from returned permits only.
h Catches by Fairbanks subsistence use permit holders that fished in the Tanana River.
i Other permit holders that fished in District 6 but did not reside in the villages listed.

Appendix A.5. Subsistence salmon catches taken under authority of a permit in District 5, Upper Yukon Area, 1974-1992. a

Upper Yukon River (Hess Creek to Dall River) Subsistence Salmon Fishery b

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches c	Chinook	Summer Chum d	Fall Chum d	Coho
1974	29	e	e	591		1,857	1,271
1975	19	e	e	727		778	70
1976	28	e	18	531		974	e
1977	38	e	e	467		2,567	e
1978	57	e	e	1,333		9,735	e
1979	55	e	41	2,194		12,374	e
1980	70	e	67	1,350		6,488	36
1981	57	e	24	1,095		12,034	e
1982	64	e	44	1,935		11,328	20
1983	68	e	46	2,672		15,059	e
1984	67	e	54	4,676		27,869	399
1985	55	e	42	2,618		21,832	33
1986	76	e	58	3,827		18,690	759
1987 f	16	e	14	1,818	2,091	7,631	6
1988	24	21	18	1,747	2,097	3,183	606
1989	26	20	13	2,483	574	1,157	309
1990 g	26	25	16	2,033	3,493	1,109	455
1991	52	46	34	2,529	1,295	3,953	20
1992	45	42	33	2,241	975	2,491	34

Upper Yukon River (22 Mi Slough to U.S./Canada Border) Subsistence Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches c	Chinook	Summer Chum d	Fall Chum d	Coho
1979	75	e	6	4,063		30,475	114
1980	48	e	39	3,649		18,477	6
1981	71	e	51	4,510		38,333	e
1982	60	e	61	3,833		15,432	e
1983	53	e	52	2,831		23,708	e
1984	58	e	54	2,543		21,675	17
1985	59	e	36	2,419		19,059	2
1986	40	e	52	4,148		20,701	43
1987	51	51	58	3,602	2,495	27,369	0
1988	58	57	50	2,783	2,134	9,078	101
1989	59	56	42	1,186	68	7,515	1
1990	81	75	54	3,746	1,629	14,992	206
1991	70	69	48	3,219	658	14,898	5
1992	85	79	54	2,984	409	12,009	57

a Salmon catches expanded for permits not returned (1974-1987). Beginning in 1988, reported harvest from returned permits only.
b Includes catches from Stevens Village and Rampart.
c Some fishermen reporting catches did not have permits.
d Summer chum and fall chum salmon undifferentiated from 1974-1986.
e Information not available.
f Personal use fishery established only for fall chum salmon in 1987.
g Some fishermen may have had personal use catches due to changes in the subsistence law. No personal use permits have been issued since 1990.

Appendix A.6. Subsistence salmon catches taken under authority of a permit, in the Tanana River drainage, 1973-1992. a

Tanana River (Subdistrict 6-A) Subsistence Salmon Fishery b

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1988	28	24	18	845	1,389	9,165	3,455
1989 c d	29	28	24 e	651	1,918	25,266	5,292
1990 d	42	36	26	1,369	2,250	27,957	8,408
1991	45	41	31	420	1,716	17,472	8,486
1992	38	35	26	508	450	5,999	5,028

Tanana River (Subdistrict 6-B) Subsistence Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1988	75	66	52	3,721	3,167	18,902	18,906
1989 c f	60	51	37 e	455	363	18,506	8,453
1990 f	70	58	38	1,234	1,966	16,332	9,155
1991 f	87	78	51	1,796	2,373	21,629	11,971
1992 f	98	89	57	1,587	7,820	18,782	11,409

Upper Tanana River (Upstream of Wood River) Subsistence Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1973	22	g	4	26	771	886	h
1974	70	g	g	38	1,373	1,580	h
1975	36	g	g	32	751	864	h
1976	110	g	g	31	1,314	1,512	h
1977	89	g	33	81	118	607	h
1978	160	g	126	126	2,729	1,188	h
1979	246	g	199	264	2,384	4,459	h
1980	315	g	254	282	3,729	4,059	h
1981	346	g	228	440	3,239	5,770	h
1982	330	g	209	451	2,708	4,521	h
1983	259	g	147	475	2,276	3,830	h
1984	308	g	212	321	3,177	5,134	h
1985	291	g	155	326	2,646	3,937	h
1986	323	g	211	637	4,031	4,437	h
1987 i	217	g	123	531	2,739	0	0
1988	0	0	0	0	0	0	0
1989	2	2	2	5	0	39	0
1990 j	20	19	6	15	69	279	50
1991	157	149	104	299	980	1,368	1,103
1992	160	157	94	343	1,234	932	1,117

a Salmon catches expanded for permits not returned (1973-1987). Begining in 1988, reported harvest from returned permits only.
b Includes Kantishna River catches.
c Permit requirement for Subdistricts 6-A and 6-B went into effect in 1988; however, very few permits were issued in 1988, and not all fishermen had permits in 1989.
d Includes salmon given away as part of the Departments test fishing projects in Manley.
e Some fishermen reporting catches did not have permits.
f Includes salmon given away as part of the Departments test fishing projects in Nenana.
g Information not available.
h Fall chum and coho salmon were not reported as separate species from 1973-1987.
i Personal use fishery established for nonrural residents beginning in July of 1987.
j Some fishermen had both personal use and subsistence permits since the McDowell Decision which became effective July 1990 stated that all Alaskan residents were eligible subsistence participants.

Appendix A.7. Subsistence and personal use chum salmon carcasses taken under authority of a permit, Tanana River drainage, 1973-1992.

Upper Tanana R. (Big Delta area) Subsistence and Personal Use Chum Salmon Carcass Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Fall Chum Carcasses
1973	16	a	8	1,561
1974	21	a	a	1,974
1975	26	a	a	2,573
1976	36	a	a	3,441
1977	46	a	29	5,816
1978	70	a	43	2,517
1979	32	a	25	4,582
1980	57	a	36	4,915
1981	43	a	27	5,030
1982	37	a	13	1,690
1983	45	a	29	5,357
1984	31	a	14	2,353
1985	30	a	14	2,111
1986	27	a	19	2,276
1987 b	20	17	13	1,931
1988 b	22	20	15	2,100
1989 b	12	12	10	1,785
1990 b	7	7	3	750
1991	8	4	3	741
1992	10	10	9	1,897

a Information not available.

b Personal use permits 1987-1990, all other years subsistence permits.

APPENDIX B

PERSONAL USE SALMON FISHERY

Appendix B.1. Personal use salmon catches taken under authority of a permit in the Lower Yukon Area and the Tanana River drainage, 1987-1992. a

Lower Yukon Personal Use Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	17	14	10	67	416	5	0
1989	26	23	12	286	381	18	59
1990	19	16	15	450	256	60	8
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0

Tanana River (Subdistrict 6-A) Personnal Use Fishery b

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	1	1	0	0	0	0	0
1989	1	1	1	0	4	0	0
1990	1	1	0	0	0	0	0
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0

Tanana River (Subdistrict 6-B) Personnal Use Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	0	0	0			0	
1988	1	1	1	306	60	40	22
1989	1	1	1	56	220	0	0
1990	4	4	3	9	12	40	35
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0

Upper Tanana River (Upstream of Wood River) Personnal Use Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches	Chinook	Summer Chum	Fall Chum	Coho
1987	132 d	c	60 e			3,316	2,465
1988	208	162	120	317	1,182	2,074	1,125
1989	175	160	112	397	991	1,770	731
1990	152	144	102	442	918	1,353	1,120
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0

a Personal use fishery during 1987 applied to nonrural residents harvesting only fall chum. Beginning in 1988, nonrural personal use fishing applied to all salmon species and reported harvest is from returned permits only. Effective July 1, 1990 all Alaskan residents became eligible for subsistence fishing permits.
b Includes Kantishna River catches.
c Information not available.
d Represents 60 former subsistence fishermen who were reissued permits to fish fall chum salmon for personal use.
e Some fishing families used both subsistence and personal-use permits.

Appendix B.2. Personal use salmon catches taken under authority of a permit in District 5, Upper Yukon Area, 1987-1992. a

Upper Yukon River (Hess Creek to Dall River) Personal Use Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches b	Chinook	Summer Chum	Fall Chum	Coho
1987	42	c	33	1,674	4,262	15,750	58
1988	45	42	35	1,435	567	1,762	103
1989	45	42	32	1,877	295	3,294	82
1990 d	41	36	26	1,529	641	3,723	18
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0

Upper Yukon River (22 Mi Slough to U.S./Canada Border) Personal Use Salmon Fishery

Year	No. of Permits Issued	No. of Permits Returned	Number Reporting Catches b	Chinook	Summer Chum	Fall Chum	Coho
1987	2	2	2	32	0	0	0
1988	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0
1990	4	4	3	164	0	0	0
1991	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0

a Personal use fishery during 1987 applied to nonrural residents harvesting only fall chum. Beginning in 1988, nonrural personal use fishing applied to all salmon species and reported harvest is from returned permits only. Effective July 1, 1990 all Alaskan residents became eligible for subsistence fishing permits.

b Some fishermen reporting catches did not have permits.

c Information not available.

d Includes personal use catches of two chinook salmon taken by one permittee from a non-permit area below Rampart.

APPENDIX C

LOWER YUKON AREA COMMERCIAL SALMON FISHERY

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-01-92	June 20	Opened the commercial salmon fishing season effective 6:00 p.m. June 20, 1992 in District 1 of the Lower Yukon area. This emergency order also established a 6 hour fishing period with unrestricted mesh size gillnets from 6:00 p.m. Saturday June 20 until 12:00 midnight Saturday June 20 in District 1.	Unusual ice conditions in Norton Sound delayed the arrival of chinook salmon to the Yukon River. The salmon runs appeared to be late and compressed. Subsistence fishermen began reporting large catches of both chinook and summer chum salmon on June 14.
3-LY-S-02-92	June 21	Opened the commercial salmon fishing season effective 12:00 midnight June 21, 1992 in District 2. This emergency order also established a 6 hour fishing period with unrestricted mesh size gillnets from 12:00 midnight Sunday June 21 until 6:00 a.m. Monday June 22 in District 2.	Test fishing and subsistence catches indicated both chinook and summer chum salmon runs were very late and compressed. Based on chinook salmon abundance to date, and increasing catches of chinook salmon in subsistence nets the commercial season was opened.
3-LY-S-03-92	June 22	Established a 12-hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. June 22 until 6:00 a.m. June 23 in District 1.	Based upon the projection of slightly better than average abundance of chinook salmon and reports by subsistence fishermen, a 12 hour commercial fishing period with unrestricted mesh size gillnets was announced.

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-04-92	June 23	Established a 12-hour subsistence only fishing period in District 1 from 6:00 p.m. Tuesday June 23 until 6:00 a.m. Wednesday June 24, and a 6-hour subsistence only fishing period in District 2 from 6:00 p.m. Tuesday June 23 until 12:00 midnight Tuesday June 23.	Due to high water and debris through June 20, fishermen have requested more subsistence fishing time. This emergency order provides for increased subsistence fishing opportunity.
3-LY-S-05-92	June 24	Established a 12 hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. Wednesday June 24 until 6:00 a.m. Thursday June 25 in District 2.	Test fishing and subsistence catches indicated that the chinook salmon entry was most similar to the 1985 run, which was very late and compressed.
3-LY-S-06-92	June 25	Established a 6-hour commercial fishing period with unrestricted mesh size gillnets from 12:00 midnight Thursday June 25 until 6:00 a.m. Friday June 26 in District 1.	Test fishing data indicated a harvestable surplus of chinook salmon was present.
3-LY-S-07-92	June 26	Established a 6-hour commercial fishing period with gillnets of six inch or smaller mesh size from 12:00 noon Friday June 26 until 6:00 p.m. Friday June 26 in District 2.	Test fishing catches indicated the chinook salmon return was slightly better than average in abundance. Summer chum salmon abundance appeared to be increasing.

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-08-92	June 26	Prohibits subsistence fishing with gillnets larger than six inch mesh size. This emergency order became effective 12:00 noon Friday June 26, 1992 in District 2 and 12:00 noon Saturday June 27, 1992 in District 1.	To prevent chinook salmon from being taken under the guise of subsistence fishing and entering commercial markets, it was necessary to prohibit commercial fishermen from fishing for subsistence with gillnets larger than six inch mesh size during periods restricted to six inch maximum mesh size.
3-LY-S-09-92	June 27	Established a 9-hour commercial fishing period with gillnets of six inch or smaller mesh size from 12:00 noon Saturday June 27 until 9:00 p.m. Saturday June 27 in District 1.	Test fishing catches indicated the chinook salmon return was about average in abundance. Summer chum salmon abundance appeared to be increasing.
3-LY-S-10-92	June 28	Established a 6-hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. Sunday June 28 until 12:00 midnight Sunday June 28 in District 2.	Based upon the cumulative catch to date, a more conservative approach was necessary to ensure adequate escapement from this portion of the chinook run.
3-LY-S-11-92	June 29	Established a 12-hour commercial fishing period with gillnets of six inch or smaller mesh size from 6:00 p.m. Monday June 29 until 6:00 a.m. Tuesday June 30 in District 1.	Lower river test fishing data indicated increased abundance of summer chum salmon since June 16, and late migratory timing was similar to the 1985 run.

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-12-92	June 30	Established a 12-hour subsistence only fishing period in District 1 from 6:00 p.m. Tuesday June 30 until 6:00 a.m. Wednesday July 1, and a 6-hour subsistence only fishing period in District 2 from 6:00 p.m. Tuesday June 30 until 12:00 midnight Tuesday June 30.	Due to high water and debris through June 20, fishermen have requested more subsistence fishing time during the 1992 fishing season.
3-LY-S-13-92	July 1	Opened the commercial salmon fishing season effective 6:00 p.m. Wednesday July 1, 1992 in District 3. Established a 12-hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. Wednesday July 1 until 6:00 a.m. Thursday July 2 in District 3.	Since June 14, catches of both chinook and summer chum salmon have been strong in the department's test fishing nets in the south mouth of the Yukon River. Based on chinook salmon abundance to date and run timing, opening the commercial fishing season in District 3 was warranted.
3-LY-S-14-92	July 1	Established a 12-hour commercial fishing period with gillnets of six inch or smaller mesh size from 6:00 p.m. Wednesday July 1 until 6:00 a.m. Thursday July 2 in District 2.	Lower river test fishing data indicated a relatively large abundance of summer chum salmon from June 16 through June 26, and late migratory timing was similar to the 1985 run.

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-15-92	July 2	Established a 12-hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. Thursday July 2 until 6:00 a.m. Friday July 3 in District 1.	The largest daily chinook salmon test fishing CPUE indices of the season were obtained on June 28-30. In addition, it appeared that lower river stocks were now present in District 1.
3-LY-S-16-92	July 3	Established special 24-hour subsistence only fishing periods during commercial salmon fishing season in Districts 1 and 2 through July 5. Specifically this emergency order opened subsistence only fishing from 12:00 noon July 4 until 12:00 noon July 5 in District 1. In District 2, subsistence fishing opened from 6:00 p.m. July 3 until 6:00 p.m. July 4.	This emergency order provided for increased subsistence fishing opportunity by allowing subsistence only fishing.
3-LY-S-17-92	July 5	Established a 9-hour commercial fishing period with unrestricted mesh size gillnets from 9:00 p.m. Sunday July 5 until 6:00 a.m. Monday July 6 in District 3.	Based on chinook salmon abundance and catch to date, and run timing, allowing a 9-hour commercial fishing period was warranted.

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-18-92	July 6	Established a 6-hour commercial fishing period with gillnets of six inch or smaller mesh size from 6:00 a.m. Monday July 6 until 12:00 noon Monday July 6 in District 2.	Recent test fishing catches indicated the chinook salmon return was slightly above average in abundance at this time. Reduced fishing time from normal 12-hour period because test fishery indicated summer chum abundance was decreasing.
3-LY-S-19-92	July 6	Established a 6-hour commercial fishing period with gillnets of six inch or smaller mesh size from 6:00 p.m. Monday July 6 until 12:00 midnight Monday July 6 in District 1.	Lower river test fishing CPUE data indicated a relatively large abundance of summer chum salmon from June 16 through June 26. Reduced fishing time from normal 12-hour period because test fishery indicated summer chum abundance was decreasing.
3-LY-S-20-92	July 8	Established a 6-hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. Wednesday July 8 until 12:00 midnight Wednesday July 8 in District 2.	Recent test fishing catches indicate the chinook salmon run is nearing an end and primarily lower river stocks are present within the Lower Yukon Area. Summer chum abundance was still decreasing.

Appendix C.1. List of Lower Yukon emergency orders pertaining to the District 1, 2 and 3 salmon fishery, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-S-21-92	July 8	Established a 6-hour commercial fishing period with unrestricted mesh size gillnets from 6:00 p.m. Wednesday July 8 until 12:00 midnight Wednesday July 8 in District 3. In addition, this emergency order closes the commercial salmon fishing season effective 12:00 midnight Wednesday July 8, 1992 in District 3.	Approximately 1,500 chinook salmon have been sold in District 3 after two fishing periods. This fishing period was expected to allow a harvest near the midpoint of the guideline harvest range for District 3 of 1,800 to 2,200 chinook salmon.
3-LY-S-22-92	July 9	Established a 6-hour commercial fishing period with gillnets of six inch or smaller mesh size from 6:00 p.m. Thursday July 9 until 12:00 midnight Thursday July 9 in District 1.	It was expected that the escapement objective of 500,000 chum salmon would be reached in the Anvik River in a few days. However, recent lower river test fishery data indicated continued low abundance of summer chum salmon, so fishing time was reduced to 6-hours.
3-LY-S-23-92	July 9	Closed the early commercial salmon fishing season in Districts 1 and 2 of the Lower Yukon Area effective 12:00 midnight Thursday July 9.	Based on chinook and summer chum salmon abundance to date, run timing, and catch to date, closing the commercial fishing season in Districts 1 and 2 was warranted.

Appendix C.2. Lower Yukon Area salmon processors and associated data, 1992.

Commercial Operation (Processing Location/ Buying Station)	Product	District
Yukon Delta Fish Marketing Co-op, Inc. P.O. Box 169 Emmonak, AK 99581 (Emmonak)	Frozen Salmon Chinook Chum Coho Salmon Roe	1 and 2
Bering Sea Fisheries, Inc. 4413 83rd Ave. SE Everett, WA 98205 (Lamont Slough)	Frozen Salmon Chinook Chum Coho Salmon Roe	1 and 2
Schenk Seafood Sales, Inc. P.O. Box 984 Bellingham, WA 98227 (Lamont Slough)	Frozen Salmon Chinook Chum Coho Salmon Roe	1 and 2
Boreal Fisheries P.O. Box 561 Graham, WA 98338 (Old Andreafsky)	Fresh Salmon Chinook Chum Coho Salmon Roe	1 and 2
Dragnet Fisheries P.O. Box 1260 Kenai, AK 99611 (Mt. Village)	Fresh Salmon Chinook Chum Coho Salmon Roe	1 and 2

Appendix C.3. Lower Yukon Area Commercial Fisheries Entry Commission salmon gear permits issued by residence, 1992. [a,b]

District	Residence	Gill Net Permits	Fish Wheel Permits
1, 2, and 3	Emmonak	96	
	Mountain Village	92	
	Alakanuk	81	
	Kotlik	75	
	St. Marys	69	
	Pilot Station	50	
	Marshall	36	
	Scammon Bay	40	
	Anchorage	22	
	Sheldon Point	22	
	Russian Mission	15	
	Fort Yukon	1	
	Fortuna Ledge	12	
	Bethel	14	
	Holy Cross	10	
	Stebbins	11	
	Fairbanks	10	
	Unalakleet	9	
	Wasilla	8	
	Shaktoolik	4	
	Chevak	2	
	Pitkas Point	1	
	Aniak	1	
	Big Lake	1	
	Cooper Landing	1	
	Dutch Harbor	1	
	Eek	1	
	Elim	1	
	Hoonah	1	
	Hooper Bay	1	
	Iliamna	1	
	Kalskag	1	
	Ketchikan	1	
	Kenai	1	
	Kotzebue	2	
	Koliganek	1	
	Manley Hot Springs	2	
	Nome	3	
	Palmer	1	
	Salcha	1	
	Sand Point	2	
	Sutton	1	
	Talkeetna	2	
	Tuntutuliak	1	
	Bend, OR	1	
	Cameron Mills, NY	1	
	Chargrin, OH	1	
	Everett, WA	1	
	Rock Hill, SC	1	
	Seattle, WA	2	
	Conner, MT	1	
Total Lower Yukon		716	

[a] Counts are for initial issues only and do not include transfers.

[b] Counts include interim use permits.

Appendix C.4. Chinook and summer chum salmon season commercial catch and effort by district, Lower Yukon Area, 1992. [a]

DISTRICT 1

Period Number	Period Dates Start	– End	Mesh Size	Hours Fished	No. of Fishermen [b]	Chinook Salmon Numbers	Chinook Salmon Pounds	Chinook Salmon Avg.Wt	Summer Chum Salmon Numbers	Summer Chum Salmon Pounds	Summer Chum Salmon Avg.Wt
1	06/20	06/20/92	Unrestricted	6	394	11,500	268,303	23.3	10,001	77,134	7.7
2	06/22	06/23/92	Unrestricted	12	396	22,076	508,978	23.1	24,674	186,394	7.6
3	06/26	06/26/92	Unrestricted	6	388	9,975	229,468	23.0	7,368	53,058	7.2
4	06/27	06/27/92	Restricted	9	386	7,137	133,386	18.7	54,642	368,707	6.7
5	06/29	06/30/92	Restricted	12	413	9,423	179,620	19.1	54,518	361,606	6.6
6	07/02	07/03/92	Unrestricted	12	398	11,018	247,527	22.5	6,916	47,408	6.9
7	07/06	07/06/92	Restricted	6	280	1,098	18,860	17.2	10,518	68,395	6.5
8	07/09	07/09/92	Restricted	6	263	767	12,821	16.7	8,661	56,041	6.5
	Unlawful Purchases [c]					1,218	28,489	23.4	31	230	7.4
Subtotal				69	438	74,212	1,627,452	21.9	177,329	1,218,973	6.9

DISTRICT 2

Period Number	Period Dates Start	– End	Mesh Size	Hours Fished	No. of Fishermen [b]	Chinook Salmon Numbers	Chinook Salmon Pounds	Chinook Salmon Avg.Wt	Summer Chum Salmon Numbers	Summer Chum Salmon Pounds	Summer Chum Salmon Avg.Wt
1	06/22	06/22/92	Unrestricted	6	211	5,500	123,104	22.4	5,135	38,989	7.6
2	06/24	06/25/92	Unrestricted	12	242	12,980	291,136	22.4	17,554	135,204	7.7
3	06/26	06/26/92	Restricted	6	202	3,193	40,019	12.5	59,936	418,288	7.0
4	06/28	06/28/92	Unrestricted	6	228	7,446	162,419	21.8	8,601	63,089	7.3
5	07/01	07/02/92	Restricted	12	215	3,898	67,113	17.2	37,765	251,778	6.7
6	07/06	07/06/92	Restricted	6	191	2,162	33,709	15.6	16,838	113,021	6.7
7	07/08	07/08/92	Unrestricted	6	203	2,753	59,923	21.8	1,209	8,533	7.1
	Unlawful Purchases [d]					207	4,833	23.3	91	788	8.7
Subtotal				54	263	38,139	782,256	20.5	147,129	1,029,690	7.0

DISTRICT 3

Period Number	Period Dates Start	– End	Mesh Size	Hours Fished	No. of Fishermen [b]	Chinook Salmon Numbers	Chinook Salmon Pounds	Chinook Salmon Avg.Wt	Summer Chum Salmon Numbers	Summer Chum Salmon Pounds	Summer Chum Salmon Avg.Wt
1	07/01	07/02/92	Unrestricted	12	13	667	14,251	21.4	7	51	7.3
2	07/05	07/06/92	Unrestricted	9	15	846	19,165	22.7	33	216	6.5
3	07/08	07/08/92	Unrestricted	6	10	306	6,946	22.7	25	149	6.0
Subtotal				27	19	1,819	40,362	22.2	65	416	6.4

LOWER YUKON TOTALS

	Hours Fished	No. of Fishermen	Chinook Salmon Numbers	Chinook Salmon Pounds	Chinook Salmon Avg.Wt	Summer Chum Salmon Numbers	Summer Chum Salmon Pounds	Summer Chum Salmon Avg.Wt
Total Y–1 and Y–2 [e]	123	575	112,351	2,409,708	21.4	324,468	2,248,663	6.9
Total Y–1, Y–2, and Y–3 [e]	150	579	114,170	2,450,070	21.5	324,523	2,249,079	6.9

[a] Does not include Department test fish sales of 930 chinook and 1,918 chum salmon in District 1.

[b] Number of fishermen represents unique permits fished (includes transfers between districts).

[c] Unlawful purchases by Schenk Seafood Sales, Inc. not reported on fish tickets. The majority of the harvest occured prior to the opening of the commercial fishing season.

[d] Unlawful purchases by Schenk's Seafood Sales, Inc. not reported on fish tickets. The majority of the catch occured on 24–25 June.

[e] Includes unlawful purchases by Schenk Seafood Sales, Inc.

Appendix C.5. Commercial catches of chinook and summer chum salmon by mesh size, Districts 1 and 2, Lower Yukon Area, 1961–1992.

	Unrestricted Mesh Size a		6 inch Max. Mesh Size b	
	Districts 1 and 2		Districts 1 and 2	
Year	Chinook	Summer Chum	Chinook	Summer Chum
1961	113,434	–	–	–
1962	89,296	–	–	–
1963	109,215	–	–	–
1964	87,801	–	–	–
1965	113,031	–	–	–
1966	87,710	–	–	–
1967	124,574	10,919	–	–
1968	100,857	14,402	–	–
1969	85,387	41,418	97	15,437
1970	73,610	104,705	57	16,623
1971	103,623	42,189	1,176	57,851
1972	85,376	78,698	1,991	37,881
(12 year Avg.) 1961–72	97,826	48,722	830	31,948
1973 c	65,269	89,841	5,168	196,540
1974	86,921	349,758	1,631	227,507
1975	50,614	148,919	4,162	345,472
1976	71,688	267,075	7,631	128,431
1977	81,073	157,909	4,720	205,634
1978	82,070	275,512	7,737	354,603
1979	95,137	136,973	22,136	434,188
1980	120,912	95,876	19,474	605,679
1981	125,698	163,979	18,648	758,767
1982	106,399	225,106	6,887	217,563
1983	107,078	121,927	31,002	590,329
1984	94,456	242,076	16,394	287,531
1985 d	114,300	170,345	22,445	265,240
1986	79,525	231,372	15,307	436,182
1987	102,274	126,017	21,827	269,757
1988	52,801	225,049	39,469	848,321
1989	53,674	126,360	38,548	765,233
1990	66,092	99,588	18,147	281,418
1991	87,740	106,265	4,132	205,043
1992	83,248	81,458	27,678	242,878
(10 yr. Avg.) 1982–91	86,434	167,811	21,416	416,862

a Primarily 8 to 8–1/2 inch mesh size used during early June to early July.
b Catch through July 15–20, relatively few chinook and summer chum salmon taken after these dates.
c Six inch maximum mesh size regulation beginning late June to early July became effective in 1973.
d Six inch maximum mesh size regulation by emergency order during commercial fishing season became effective in 1985.

Appendix C.6. Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 1, Lower Yukon Area, 1974–1992.

	Period Catch a (Cumulative Catch) b									
Date	1974	1975	1976	1977	1978	1979	1980	1981	1982	1983
06/01										
06/02										
06/03										
06/04										
06/05	3.5 (3.5)					6.1 (6.1)				
06/06										
06/07								11.1 (11.1)		
06/08	7.5 (11.0)					4.9 (11.0)				
06/09					2.5 (2.5)			15.6 (26.7)		
06/10							6.8 (6.8)			22.3 (22.3)
06/11		0.2 (0.2)								
06/12	14.7 (25.7)					19.5 (30.5)		14.5 (41.2)		
06/13					5.8 (8.3)					
06/14		0.4 (0.6)		0.04 (0.04)			26.1 (32.9)			12.7 (35.0)
06/15	11.1 (36.8)								5.6 (5.6)	
06/16			0.1 (0.1)			9.3 (39.8)		18.3 (59.5)		
06/17					17.6 (25.9)		14.6 (47.5)			28.6 (63.6)
06/18		1.1 (1.7)		2.6 (2.6)					12.4 (18.0)	
06/19	18.8 (55.6)		3.2 (3.3)			16.7 (56.5)		28.5 (88.0)		
06/20					7.5 (33.4)					
06/21		5.7 (7.4)		10.4 (13.0)			26.2 (73.7)			12.7 (76.3)
06/22	2.9 (58.5)					5.3 (61.8)			20.0 (38.0)	
06/23			9.6 (12.9)				4.5 (78.2)			
06/24					14.4 (47.8)					
06/25		17.1 (24.5)		26.3 (39.3)					7.1 (45.1)	
06/26	7.2 (65.7)		15.4 (28.3)							
06/27		9.8 (34.3)			5.4 (53.2)					
06/28				17.7 (57.0)						
06/29	3.8 (69.5)								18.1 (63.2)	
06/30			13.8 (42.1)							
07/01		7.3 (41.6)		8.7 (65.7)						
07/02			14.3 (56.4)						7.5 (70.7)	
07/03										
07/04										
07/05										
07/06										
07/07										
07/08										

– Continued –

Appendix C.6. (page 2 of 2).

	Period Catch a (Cumulative Catch) b								
Date	1984	1985	1986	1987	1988	1989	1990	1991	1992
06/01									
06/02									
06/03									
06/04									
06/05									
06/06									
06/07									
06/08									
06/09									
06/10									
06/11									
06/12									
06/13									
06/14					5.9 (5.9)			16.9 (16.9)	
06/15							19.0 (19.0)		
06/16				13.0 (13.0)		18.9 (18.9)			
06/17					16.0 (21.9)				
06/18								14.9 (31.8)	
06/19	13.7 (13.7)			22.5 (35.5)					
06/20			21.7 (21.7)			10.8 (29.7)			11.5 (11.5)
06/21					10.9 (32.8)			4.7 (36.5)	
06/22	18.8 (32.5)					2.5 (32.2)	15.0 (34.0)		
06/23				15.0 (50.5)					22.1 (33.6)
06/24			10.2 (31.9)						
06/25		23.6 (23.6)						9.2 (45.7)	
06/26	16.1 (48.6)			11.6 (62.1)					10.0 (43.6)
06/27									
06/28		33.7 (57.3)							
06/29	16.5 (65.1)						6.5 (40.4)		
06/30			5.6 (37.5)						
07/01									
07/02		18.8 (76.1)						5.8 (51.5)	
07/03							1.7 (42.1)		11.0 (54.6)
07/04			5.4 (42.9)						
07/05									
07/06									
07/07									
07/08									

a Catch by period in thousands of fish.
b Cumulative catch during unrestricted mesh size fishing periods in thousands of fish.

Appendix C.7. Chinook salmon commercial catch data by period, chinook salmon season (unrestricted mesh size), District 2, Lower Yukon Area, 1978–1992

	Period Catch a (Cumulative Catch) b														
Date	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
06/01															
06/02															
06/03															
06/04		1.6 (1.6)													
06/05															
06/06															
06/07		1.4 (3.0)													
06/08				7.6 (7.6)											
06/09	4.8 (4.8)		3.9 (3.9)												
06/10															
06/11		5.1 (8.1)		11.4 (19.0)											
06/12	3.2 (8.0)		7.8 (11.7)												
06/13						6.0 (6.0)									
06/14															
06/15		14.2 (22.3)		10.5 (29.5)											
06/16	4.3 (12.3)		10.9 (22.6)			7.3 (13.3)					2.7 (2.7)				
06/17					4.0 (4.0)									11.5 (11.5)	
06/18		3.9 (26.2)		8.2 (37.7)						9.5 (9.5)			10.3 (10.3)		
06/19	7.8 (20.1)											11.0 (11.0)			
06/20			8.1 (30.7)			10.6 (23.9)					9.0 (11.7)			9.6 (21.1)	
06/21		7.2 (33.4)			7.8 (11.8)		5.6 (5.6)								
06/22										12.2 (21.7)		7.5 (18.5)			5.5 (5.5)
06/23	4.1 (24.2)		12.0 (42.7)			6.9 (30.8)			14.5 (14.5)		8.3 (20.0)				
06/24					11.9 (23.7)								7.7 (18.0)	6.7 (27.8)	12.9 (18.4)
06/25							14.4 (20.0)			10.9 (32.5)		3.0 (21.5)			
06/26	4.7 (28.9)													4.1 (31.9)	
06/27								7.0 (7.0)	12.3 (26.8)						
06/28					3.4 (27.1)		9.4 (29.4)								7.5 (25.9)
06/29										7.6 (40.1)					
06/30															
07/01					8.6 (35.7)			18.3 (25.3)							
07/02									7.4 (34.2)				4.5 (22.4)		
07/03															
07/04								12.9 (38.2)						4.4 (36.3)	
07/05													1.6 (24.0)		
07/06															
07/07									2.4 (36.6)						
07/08															2.8 (28.7)

a Catch by period in thousands of fish.
b Cumulative catch during unrestricted mesh size fishing periods in thousands of fish.

Appendix C.8. Commercial chinook salmon catches by statistical area, Lower Yukon Area, 1974–1992.

	District 1								
Year	334–11	334–12	334–13	334–14	334–15	334–16	334–17	334–18	Total
1974	2,935	30,174	6,984	3,987	12,721	2,048	6,826	6,165	71,840
1975	6,396	15,844	8,763	314	1,720	606	6,879	4,063	44,585
1976	8,333	27,937	7,507	851	5,101	1,415	6,164	5,102	62,410
1977	11,278	16,787	8,866	1,216	15,214	1,550	7,109	7,895	69,915
1978	886	12,237	4,135	4,388	22,019	3,738	7,533	4,070	59,006
1979	1,017	13,152	4,149	5,782	12,839	10,960	18,976	8,202	75,077
1980	464	12,832	3,235	9,224	30,737	12,333	13,654	7,903	90,382
1981	6,639	12,875	2,975	8,976	19,730	15,158	22,251	10,902	99,506
1982	3,439	11,268	2,842	9,038	9,331	7,295	18,185	13,052	74,450
1983	7,919	23,523	8,161	14,961	9,416	5,297	19,172	7,008	95,457
1984	14,385	15,320	2,598	6,297	11,123	1,434	19,089	4,425	74,671
1985	4,233	22,696	12,160	2,492	12,806	3,955	25,144	6,525	90,011
1986	4,187	7,954	3,494	5,430	10,258	1,422	15,948	4,342	53,035
1987	14,656	12,056	8,703	3,533	6,780	3,250	18,573	9,092	76,643
1988	6,780	11,154	6,023	4,274	14,123	618	8,703	5,434	57,109
1989	2,213	5,703	4,794	3,999	12,682	7,303	18,037	4,422	59,153
1990	1,473	7,315	4,478	4,257	12,486	2,794	14,619	3,739	51,161
1991	1,677	4,201	1,623	3,451	12,359	6,106	18,142	5,455	53,014
1992	11,302	12,601	9,001	6,313	6,703	2,285	18,233	7,379	73,817

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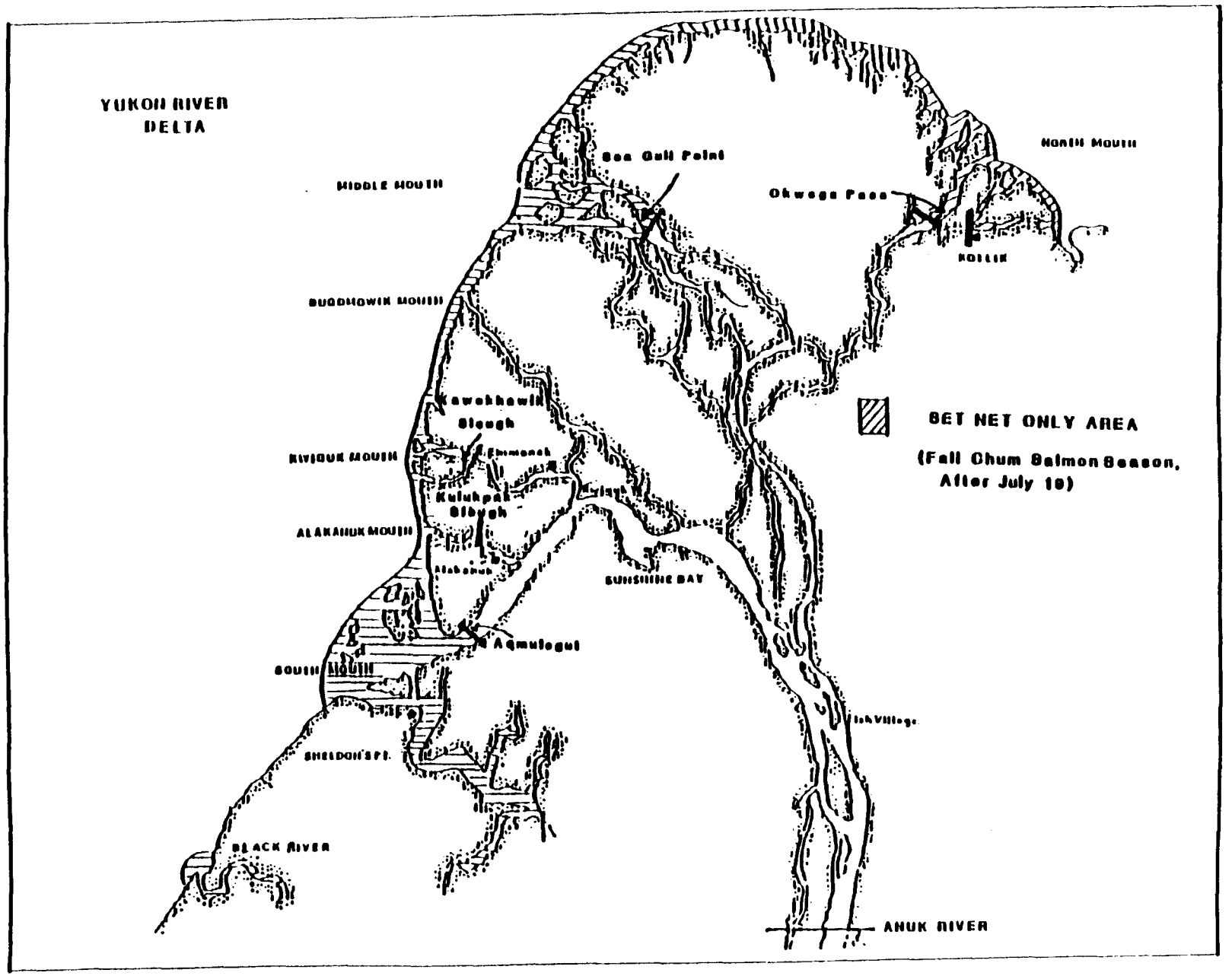
Appendix C.8. (page 2 0f 2).

	District 2							District 3		
Year	334 – 21	334 – 22	334 – 23	334 – 24	334 – 25	Total	Year	334 – 31	334 – 32	Total
1974	6,344	5,611	2,624	3,369	–	17,948	1974	1,423	2,057	3,480
1975	3,282	3,045	2,785	2,203	–	11,315	1975	2,791	1,386	4,177
1976	5,083	4,490	3,031	3,952	–	16,556	1976	1,827	2,321	4,148
1977	6,577	4,584	2,110	3,451	–	16,722	1977	1,617	2,348	3,965
1978	9,004	7,953	5,248	8,499	2,220	32,924	1978	746	2,170	2,916
1979	10,698	11,214	6,733	7,573	5,280	41,498	1979	2,195	2,823	5,018
1980	11,544	12,903	8,259	9,591	7,707	50,004	1980	2,039	3,201	5,240
1981	12,341	13,275	7,024	5,950	7,191	45,781	1981	1,241	2,782	4,023
1982	10,567	9,236	5,262	8,932	5,135	39,132	1982	896	1,713	2,609
1983	12,433	10,424	7,779	6,260	6,333	43,229	1983	1,335	2,771	4,106
1984	9,179	11,573	4,668	5,752	5,525	36,697	1984	900	2,139	3,039
1985	11,843	18,584	4,877	4,613	8,448	48,365	1985	854	1,734	2,588
1986	11,138	15,326	3,450	4,336	7,599	41,849	1986	606	295	901
1987	14,195	9,672	5,663	6,376	11,552	47,458	1987	1,698	341	2,039
1988	6,191	11,605	4,721	6,784	5,887	35,188	1988	1,387	380	1,767
1989	5,257	12,380	4,647	4,411	6,530	33,225	1989	1,623	22	1,645
1990	5,592	10,675	3,741	8,514	4,691	33,213	1990	2,128	213	2,341
1991	9,300	10,423	5,332	6,552	7,339	38,946	1991	1,214	1,130	2,344
1992	9,014	11,647	4,135	11,311	1,825	37,932	1992	1,160	659	1,819



Appendix C.9. Setnet only area, District 1 of the Yukon Management Area.

Appendix C.10. Fall chum and coho salmon commercial catch and effort in the Set Net Only and Gill Net areas, District 1, Lower Yukon Area, 1983–1992.

Year	Set Net Area			Gill Net Area			Total		
	No. of Fishermen	Catch	Average Catch per Fisherman	No. of Fishermen	Catch	Average Catch per Fisherman	No. of Fishermen	Catch	Average Catch per Fisherman
Fall Chum Salmon									
1983	137	46,583	340	175	61,649	352	312	108,232	347
1984	137	34,817	254	164	24,307	148	301	59,124	196
1985	159	64,838	408	153	53,694	351	312	118,532	380
1986	122	28,449	233	160	30,903	193	282	59,352	210
1987 a									
1988	120	21,971	183	208	23,558	113	328	45,529	139
1989	103	26,865	261	219	51,011	233	322	77,876	242
1990	83	7,553	91	218	19,784	91	301	27,337	91
1991	67	19,769	295	252	39,955	159	319	59,724	187
1992 b									
Coho Salmon									
1983	137	1,021	7	175	3,536	20	312	4,557	15
1984	137	15,077	110	164	14,390	88	301	29,467	98
1985	159	12,841	81	153	14,832	97	312	27,673	89
1986	122	9,334	77	160	15,490	97	282	24,824	88
1987 a									
1988	120	13,408	112	208	23,027	111	328	36,435	111
1989	103	6,443	63	219	18,227	83	322	24,670	77
1990	83	2,033	24	218	11,321	52	301	13,354	44
1991	67	19,497	291	252	34,598	137	319	54,095	170
1992 b									
Combined									
1983	137	47,604	347	175	65,185	372	312	112,789	362
1984	137	49,894	364	164	38,697	236	301	88,591	294
1985	159	77,679	489	153	68,526	448	312	146,205	469
1986	122	37,783	310	160	46,393	290	282	84,176	298
1987 a									
1988	120	35,379	295	208	46,585	224	328	81,964	250
1989	103	33,308	323	219	69,238	316	322	102,546	318
1990	83	9,586	115	218	31,105	143	301	40,691	135
1991	67	39,266	586	252	74,553	296	319	113,819	357
1992 b									

a 1987 fall season closed.
b 1992 fall season closed.

Appendix C.11. Fall chum salmon commercial catch data by period, District 1, Lower Yukon Area, 1978–1992

	Period Catch (Cumulative Catch) a														
Date	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992
07/16	6.3 (6.3)		4.2 (4.2)					6.3 (6.3)							
07/19						16.1 (16.1)									
07/20		6.0 (6.0)			4.3 (4.3)										
07/21	5.1 (11.4)			6.0 (6.0)											
07/22			6.6 (10.8)												
07/23					27.8 (32.1)										
07/24		7.2 (13.2)		1.3 (7.3)									1.0 (1.0)		
07/25	52.8 (64.2)		10.4 (21.2)												
07/26															
07/27		14.8 (28.0)			4.0 (36.1)								1.8 (2.8)		
07/28	2.8 (67.0)			57.3 (64.6)								4.4 (4.4)			
07/29			15.3 (36.5)			3.0 (19.1)									
07/30					11.7 (47.8)									15.3 (15.3)	
07/31		9.7 (37.7)	1.4 (37.9)	23.2 (87.8)			16.3 (16.3)						1.7 (4.5)		
08/01	14.4 (81.4)											0.2 (4.5)			
08/02						16.5 (37.6)		2.2 (8.5)						3.0 (18.3)	
08/03		17.5 (55.2)					17.1 (35.4)						11.2 (15.7)		
08/04	0.4 (81.8)				7.9 (55.7)							48.8 (53.3)			
08/05			6.2 (44.1)			23.7 (61.3)			11.4 (11.4)						
08/06					1.2 (56.9)			15.2 (23.7)						7.4 (25.7)	
08/07		37.6 (93.0)	13.5 (57.6)				1.8 (37.2)						7.5 (23.2)		
08/08	1.4 (83.2)								7.5 (18.9)			3.8 (57.2)			
08/09						44.0 (105.3)		35.8 (59.5)			32.5 (32.5)			9.2 (34.9)	
08/10		1.3 (94.3)			13.7 (70.6)										
08/11	1.6 (84.8)		5.2 (62.8)									2.5 (59.7)			
08/12					20.7 (91.3)	19.1 (124.4)			10.5 (29.4)						
08/13				43.8 (131.6)				65.3 (124.6)						1.4 (36.3)	
08/14		7.1 (101.4)	1.8 (64.6)				11.8 (49.0)								
08/15	1.4 (86.2)								10.2 (45.6)			14.9 (74.7)			
08/16														4.1 (40.4)	
08/17							10.1 (59.1)								
08/18	10.2 (96.4)			3.9 (135.5)											
08/19			42.2 (106.8)						5.8 (51.4)		0.5 (33.0)				
08/20													4.1 (27.3)	2.8 (43.2)	
08/21															
08/22	21.9 (118.3)								8.0 (59.4)			2.9 (77.6)			
08/23											6.9 (39.9)			14.7 (57.9)	
08/24															
08/25	4.4 (122.7)											0.3 (77.9)			
08/26											4.1 (44.0)				
08/27														1.8 (59.7)	
08/28															
08/29	5.2 (127.9)														
08/30											1.5 (45.5)				

a Period and cumulative catches in thousands of fish. Fall chum salmon run usually well underway in the lower Yukon River by July 18. Season closures occurred in the following years.
1981: Season closed 8/01–8/12.
1983: Season closed 7/20–7/27.
1984: Season closed 7/18–8/01 and 8/08–8/12.
1985: Season closed 7/20–7/31.
1986: Season closed 7/16–8/08.
1987: Season closed.
1988: Season closed 7/16–8/07.
1989: Season closed 7/15–7/28.
1990: Season closed 7/04–7/22 and 8/08–8/19.
1991: Season closed 7/15–7/28.
1992: Season closed.

Appendix C.12. Commercial chum salmon catches by statistical area, Lower Yukon Area, 1971–1992.

	District 1								
Year	334–11	334–12	334–13	334–14	334–15	334–16	334–17	334–18	Total
1971	834	87,740	24,766	34,891	40,617	8,063	67,635	17,915	282,461
1972	5,186	98,909	12,146	25,943	56,039	4,073	38,274	10,375	250,945
1973	17,259	176,119	39,583	18,608	61,969	6,413	52,770	22,706	395,427
1974	38,322	338,412	116,940	22,011	50,593	5,357	37,724	32,681	642,040
1975	28,970	257,485	103,423	12,078	41,295	5,779	99,232	28,244	576,506
1976	26,277	203,024	52,480	9,338	28,848	2,872	32,093	24,123	379,055
1977	34,312	181,459	54,082	9,872	41,799	1,083	41,026	18,777	382,410
1978	5,072	195,080	67,098	56,995	79,352	4,602	75,090	38,443	521,732
1979	1,791	115,528	38,161	43,263	92,706	46,401	93,777	47,713	479,340
1980	3,840	82,898	16,940	46,164	87,270	98,326	109,005	53,638	498,081
1981	25,569	206,200	26,220	76,591	91,722	51,660	143,747	53,283	674,992
1982	9,908	83,130	17,910	54,795	56,632	20,602	60,263	43,760	347,000
1983	42,300	122,374	40,200	75,016	65,665	42,903	121,328	65,749	575,535
1984	42,579	106,209	17,376	54,519	36,021	12,711	73,710	28,302	371,427
1985	14,290	87,872	32,162	46,932	76,155	11,866	79,846	28,311	377,434
1986	39,844	112,778	38,347	55,663	47,790	10,898	97,802	37,357	440,479
1987	34,852	51,350	22,794	15,109	21,646	7,786	45,911	23,450	222,898
1988	82,625	155,531	81,873	61,171	68,444	17,144	139,464	87,475	693,727
1989	29,129	92,723	41,456	77,153	145,519	37,945	152,195	49,387	625,507
1990	23,453	35,542	15,326	12,369	10,931	1,513	39,575	10,202	148,911
1991	13,778	44,352	8,232	16,719	21,251	30,721	46,512	16,318	197,883
1992	24,094	39,225	22,293	16,717	12,000	2,500	40,353	20,116	177,298

–Continued–

Appendix C.12. (page 2 of 2)

	District 2							District 3		
Year	334-21	334-22	334-23	334-24	334-25	Total	Year	334-31	334-32	Total
1971	2,255	3,144	286	427	–	6,112	1971	26	24	50
1972	3,091	22,746	250	7,718	–	33,805	1972	0	1,840	1,840
1973	22,207	56,193	6,181	24,125	–	108,706	1973	0	463	463
1974	39,116	52,514	11,191	24,871	–	127,692	1974	1,697	576	2,273
1975	20,947	98,986	11,028	19,844	–	150,805	1975	0	5,590	5,590
1976	22,282	58,016	18,173	21,931	–	120,402	1976	4,450	9,602	14,052
1977	26,158	75,281	23,789	32,445	–	157,673	1977	12,839	6,424	19,263
1978	48,868	132,002	31,990	60,770	5,564	279,194	1978	20,028	18,502	38,530
1979	73,509	86,020	29,988	33,069	44,294	266,880	1979	28,272	37,698	65,970
1980	80,931	156,962	75,513	47,772	31,407	392,585	1980	23,646	34,655	58,301
1981	76,143	215,346	88,040	78,218	49,014	506,761	1981	35,597	37,917	73,514
1982	60,611	103,689	27,600	61,685	25,340	278,925	1982	3,896	6,005	9,901
1983	74,985	76,494	80,631	53,099	48,528	333,737	1983	7,713	16,905	24,618
1984	57,212	114,732	50,738	55,259	29,793	307,734	1984	6,876	640	7,516
1985	42,042	98,294	28,513	24,770	34,970	228,589	1985	5,045	1,911	6,956
1986	50,865	145,946	41,516	58,531	42,876	339,734	1986	3,235	0	3,235
1987	48,734	54,459	19,157	22,988	29,538	174,876	1987	3,418	83	3,501
1988	79,329	153,506	61,687	92,676	69,835	457,033	1988	13,211	2,844	16,055
1989	58,229	174,839	63,987	73,571	71,242	441,868	1989	22,701	209	22,910
1990	15,414	37,585	25,132	34,980	19,396	132,507	1990	562	81	643
1991	56,962	93,383	46,875	43,221	37,336	277,777	1991	10,556	7,569	18,125
1992	31,399	59,401	22,107	31,085	3,046	147,038	1992	63	2	65

Appendix C.13. Average weight of salmon in pounds, commercial catch, Lower Yukon Area, 1964–1992. a

	Lower Yukon Area			
Year	Chinook	Summer Chum	Fall Chum	Coho
1964	22.6			
1965	23.0			
1966	23.0			
1967	24.0			7.3
1968	26.5			
1969	23.9			6.7
1970	22.3			7.1
1971	22.6			6.9
1972	24.6	6.6	7.6	7.1
1973	24.5	6.8	7.9	7.1
1974	23.7	6.5	7.5	7.0
1975	22.0	6.5	7.5	7.2
1976	21.9	6.5	7.5	6.6
1977	23.9	7.0	8.0	7.5
1978	24.0	7.1	7.7	7.0
1979	20.9	7.4	7.4	7.3
1980	22.5	6.9	6.9	6.4
1981	24.8	7.5	8.0	6.8
1982	23.0	7.1	7.7	6.7
1983	20.5	7.2	7.9	7.0
1984	20.5	6.8	7.5	7.0
1985	20.3	6.7	7.7	7.4
1986	20.2	6.9	7.2	6.3
1987	21.7	6.8		
1988	19.6	7.0	7.9	7.3
1989	19.9	7.2	7.5	7.3
1990	19.6	7.3	7.7	6.8
1991	20.4	6.7	7.4	7.0
1992	21.5	6.9		

a Information not available for some years. Data obtained from age–length – weight samples or fish ticket entries.

Appendix C.14. Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Lower Yukon Area, 1976–1992. a

	Lower Yukon Gill Net b		
Year	Permits Issued c	Permits Fished	Percent Permits Fished
1976	678	d	d
1977	700	609	87%
1978	699	650	93%
1979	708	661	93%
1980	709	654	92%
1981	711	666	94%
1982	710	664	94%
1983	708	655	93%
1984	708	674	95%
1985	708	664	94%
1986	707	670	95%
1987	706	656	93%
1988	707	677	96%
1989	707	682	96%
1990	708	675	95%
1991	717	680 e	95%
1992	716	679 e	95%

a Information for 1976–1990 obtained from CFEC unless otherwise indicated.
b Set or drift gill net.
c Includes permanent and interim–use permits.
d Information unavailable.
e Data source: ADF&G.

Appendix C.15. Number of commercial salmon fishing gear operators (permit holders) by district, Lower Yukon Area, 1981–1992. a

EARLY SEASON

Year	Dist. 1	Dist. 2	Dist. 3	Subtotal
1981	448	225	23	c
1982	450	225	21	c
1983	455	225	20	c
1984	444	217	20	672
1985	425	223	18	658
1986	441	239	7	672
1987	440	239	13	659
1988	456	250	22	678
1989	445	243	16	687
1990	453	242	15	679
1991	489	253	27	678
1992	438	263	19	679

LATE SEASON

Year	Dist. 1	Dist. 2	Dist. 3	Subtotal
1981	462	240	21	c
1982	445	218	15	c
1983	312	224	18	c
1984	327	216	12	536
1985	345	222	13	559
1986	282	231	14	510
1987	–	–	–	0
1988	328	233	13	563
1989	322	229	22	550
1990	301	227	19	529
1991	319	238	19	540
1992	–	–	–	0

COMBINED SEASON

Year	Dist. 1	Dist. 2	Dist. 3	Subtotal
1981	507	257	26	c
1982	455	244	22	c
1983	458	235	26	c
1984	453	236	26	676
1985	434	247	24	666
1986	444	259	18	672
1987	440	239	13	659
1988	460	260	24	683
1989	452	257	23	687
1990	459	258	22	679
1991	497	272	29	680
1992	438	263	19	679

a Actual number of unique permits which delivered by district. Some individual fishermen in the Lower Yukon Area may have operated in more than one district during the year.
d Early season refers to chinook and summer chum season.
c Data unavailable.
d Refers to time when fall chum salmon fishery occurs.

Appendix C.16. Value of commercial salmon fishery to Lower Yukon Area fishermen, 1977–1992.

	Chinook		Summer Chum			Fall Chum		Coho			
Year	$/lb.	Dollars	$/lb.	Dollars	Subtotal Value	$/lb.	Dollars	$/lb.	Dollars	Subtotal Value	Total Value
1977	0.85	1,841,033	0.40	1,007,280	2,848,313	0.45	718,571	0.50	140,914	859,485	3,707,798
1978	0.90	2,048,674	0.45	2,071,434	4,120,108	0.47	691,854	0.60	96,823	788,677	4,908,785
1979	1.09	2,763,433	0.52	2,242,564	5,005,997	0.68	1,158,485	0.80	83,466	1,241,951	6,247,948
1980	1.04	3,409,105	0.20	1,027,738	4,436,843	0.28	394,162	0.36	17,374	411,536	4,848,379
1981	1.20	4,420,669	0.40	2,741,178	7,161,847	0.55	1,503,744	0.60	87,385	1,591,129	8,752,976
1982	1.41	3,768,107	0.40	1,237,735	5,005,842	0.55	846,492	0.69	135,828	982,320	5,988,162
1983	1.40	4,093,562	0.34	1,734,270	5,827,832	0.34	591,011	0.35	17,497	608,508	6,436,340
1984	1.50	3,510,923	0.26	926,922	4,437,845	0.32	374,359	0.50	256,050	630,409	5,068,254
1985	1.50	4,294,432	0.35	1,032,700	5,327,132	0.47	634,616	0.53	176,254	810,870	6,138,002
1986	1.63	3,165,078	0.38	1,746,455	4,911,533	0.49	399,321	0.71	211,942	611,263	5,522,796
1987	1.98	5,428,933	0.48	1,313,618	6,742,551	–	0	–	0	0	6,742,551
1988	2.97	5,463,800	0.66	5,001,100	10,464,900	1.01	638,700	1.38	734,400	1,373,100	11,838,000
1989	2.77	5,181,700	0.34	2,217,700	7,399,400	0.50	713,400	0.66	323,300	1,036,700	8,436,100
1990	2.84	4,820,859	0.24	497,571	5,318,430	0.45	238,165	0.66	137,302	375,467	5,693,897
1991	3.70	7,178,100	0.36	785,200	7,963,300	0.34	438,310	0.44	300,182	738,492	8,701,792
1992	4.12	9,957,002	0.27	606,976	10,563,978	–	0	–	0	0	10,563,978
5 Yr Ave 1987–1991	2.85	5,614,678	0.42	1,963,038	7,577,716	0.46	405,715	0.63	299,037	704,752	8,282,468

Appendix C.17. Associated environmental and salmon catch data, Yukon River, 1961 – 1992.

Year	Average Nome April Air Temp. (F)	Tanana River Nenana Ice Breakup	Iceout Yukon Delta Area	First Chinook Caught Delta Area b	First Chinook Caught Kuskokwim River b	First Chinook Caught Dist. 1 Comm. Fishery	First Summer Chum Caught Delta Area b	First Summer Chum Caught Dist. 1 Comm. Fishery
1961	18	5/05	a	6/05	a	6/05	a	–
1962	18	5/12	6/10	6/07 c	a	6/11	a	–
1963	18	5/05	5/29	a	a	6/03	a	–
1964	13	5/20	>6/12	a	a	6/15	a	–
1965	20	5/07	6/01	6/06	5/31	6/07	a	–
1966	15	5/08	6/06	6/09	5/27 g	6/10	a	–
1967	23	5/04	a	5/20	5/20	6/02	5/30	6/09
1968	14	5/08	a	a	5/26	6/03	6/05	6/07
1969	22	4/28	5/25	5/26	5/23	6/02	6/02	6/02
1970	15	5/04	late May	6/06	5/21	6/06	6/05	6/11
1971	13	5/08	6/05	6/11	6/06	6/11	6/15	6/15
1972	12	5/10	6/03	6/09	6/05	6/09	6/11	6/10
1973	18	5/04	6/01	5/30 d	5/27	6/05	6/05	6/07
1974	21	5/06	late May	5/27	5/23	6/03	6/01	6/03
1975	13	5/10	6/01	6/01	5/26	6/09	6/13	6/13
1976	10	5/02	6/01	6/12	6/01	6/14	6/13	6/14
1977	9	5/06	6/01	6/09	5/31	6/11	6/11	6/13
1978	25	4/30	5/20	5/26	5/18	6/08	5/26	6/08
1979	26	4/30	5/20	5/24	5/16	6/04	5/28	6/04
1980	24	4/29	5/19	5/27 e	5/17	6/09	5/31	6/09
1981	24	4/30	5/18	5/25	5/22	6/05	5/28	6/05
1982	12	5/10	6/02	6/06	6/01	6/14	6/06	6/14
1983	25	4/29	5/21	5/25	5/23	6/09	5/30	6/09
1984	12	5/09	6/01	6/02 f	5/25	6/18	6/08	6/18
1985	1	5/11	6/05	6/14	6/03	6/24	6/16	6/24
1986	12	5/08	6/01	6/06	5/29	6/14 h	6/07	6/14
1987	19	5/05	5/31	5/31	5/24	6/15	6/04	6/15
1988	23	4/27	5/20	5/27	5/16	6/09 h	5/27	6/09
1989	25	5/01	5/31	5/29 i	5/25	6/13 h	6/03	6/13
1990	26	4/23	5/28	5/29	5/22	6/14	5/31	6/14
1991	25	5/01	5/24	5/29	5/20	6/13	5/29	6/13
1992	22 j	5/14	6/03 k	6/13	5/23	6/20	6/13	6/20

a Information not available.
b Subsistence or test net fishery.
c Caught 6/09 Mt. Village, back calculated arrival date to mouth.
d Caught 6/03 Pilot Station, back calculated arrival date to mouth.
e Caught 5/23 Marshall, back calculated arrival date to mouth.
f Caught 6/05 Pitkas Point, back calculated arrival date to mouth.
g Caught 6/01 Kalskag, back calculated arrival date to mouth.
h Special six inch maximum mesh size fishing period.
i Caught 6/01 St. Marys, back calculated arrival date to mouth.
j Average May air temperature was 8.2°f below normal.
k The mainstem Yukon River was ice free on this date, but ice remained along the coast until June 10.

APPENDIX D

UPPER YUKON AREA
COMMERCIAL SALMON FISHERY

Appendix D.1. List of Upper Yukon Area Emergency Orders, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-UY-01-92	May 13	Allowed personal use and subsistence fishing for whitefish and suckers in the main Tanana River and its adjoining sloughs between the mouth of the Salcha River and the mouth of the Gerstle River.	After consulting with Sport Fish Division and Subsistence Division, it was determined that whitefish and sucker populations in the main Tanana River between the Salcha River and the Gerstle River are healthy and can support a regulated personal use and subsistence harvest.
3-UY-02-92	June 26	Allowed uninterrupted subsistence salmon fishing in District 4 until 24 hours prior to the opening of the commercial salmon season.	Prior to June 15, District 4 subsistence fishermen are allowed uninterrupted subsistence fishing time. On June 15, the District 4 subsistence fishing schedule is altered by regulation to two 48-hour periods per week. This change normally coincides with the opening of the District 4 commercial salmon fishing season; however, with the projected below average return of summer chum salmon to the Yukon River, the opening of the District 4 commercial salmon season will be considerably later than June 15.
3-UY-03-92	July 5	Opened the Yukon area District 4 commercial salmon fishing season and established a fishing schedule of two 24-hour fishing periods per week in Subdistrict 4-A and two 48-hour fishing periods per week in Subdistricts 4-B and 4-C.	Based on Department test net catches and preliminary commercial catches in Districts 1 and 2, the Yukon River chinook and summer chum salmon runs appeared to be as forecasted. With the early subsistence needs being fulfilled and an expected harvestable surplus of chinook and summer chum salmon available, a commercial fishery in District 4 was warranted.
3-UY-04-92	July 5	Reduced the Subdistrict 4-A two 48-hour periods per week set gillnet and fish wheel subsistence fishing schedule to two 24-hour periods per week and allowed the two 48-hour drift-gillnet salmon fishing periods per week to continue as scheduled.	The subsistence fishing schedule for Subdistrict 4-A coincides with the commercial salmon fishing schedule. The normal fishing schedule is for two 48-hour periods per week during the commercial season. However, with the reduced commercial salmon fishing period in Subdistrict 4-A to a 24-hour commercial period, the subsistence fishing schedule for set gillnets and fish wheels in Subdistrict 4-A was also reduced to coincide with the commercial schedule.

Appendix D.1. (Page 2 of 6)

E.O. Number	Effective Date	Action Taken	Comments
3-UY-05-92	July 10	Opened the commercial salmon fishing season in Yukon area Subdistricts 5-A, 5-B and 5-C effective 6:00 PM Friday, July 10, 1992. Once opened, regulation established a commercial fishing schedule of two 48-hour periods per week.	Based on department test net catches and preliminary lower Yukon River commercial catch statistics, the 1992 chinook salmon return appeared to be above average. With initial subsistence needs fulfilled and a harvestable surplus of chinook salmon available, a commercial fishery was warranted.
3-UY-06-92	July 10	Established the special 24-hour subsistence only fishing period in the lower portion of Subdistrict 4-A (downstream of Stink Creek).	The subsistence salmon fishing schedule for Subdistrict 4-A normally coincides with the commercial salmon fishing schedule. However, Emergency Order 3-UY-03-92 reduced the commercial salmon fishing period in Subdistrict 4-A. Emergency Order 3-UY-04-92 established the same fishing schedule for the subsistence fishery. This emergency order recognized the lower Subdistrict 4-A subsistence fishermen's needs and allowed an additional 24-hour subsistence only fishing period in that portion of Subdistrict 4-A below Stink Creek.
3-UY-07-92	July 14	Established a commercial fishing period of 24-hours for Yukon River Subdistrict 5-A, 5-B and 5-C beginning Tuesday, July 14, 1992 at 6:00 p.m.	The harvest during the first period in Subdistricts 5-A, 5-B, and 5-C was approaching the guideline harvest range of 2,400 to 2,800 chinook salmon. Establishing a second commercial period of 24-hours allows the remaining harvestable surplus of chinook salmon to be taken.
3-UY-08-92	July 15	Regulations adopted by the Board of Fisheries became effective July 15 and altered the format of sections 5 AAC 05.310. FISHING SEASONS. and 5 AAC 05.320. FISHING PERIODS. This emergency order continued the intent of the previous emergency orders which cited these sections under the regulations in effect prior to July 15, 1992.	Emergency orders issued prior to July 15, 1992, that referred to these sections need to reflect the change in the format. This emergency order continued the intent of the previous emergency orders which cited these sections under the regulations in effect prior to July 15, 1992.

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E.O. Number	Effective Date	Action Taken	Comments
3-UY-09-92	July 15	Opened Subdistrict 5-D commercial salmon fishing season at 6:00 p.m., July 16, 1992. Also established a commercial fishing period of 48 hours.	The Yukon River chinook salmon run appeared to be above average based on department test net catches and preliminary commercial catch statistics in the lower portions of the Yukon River. With initial subsistence needs fulfilled and a harvestable surplus of chinook salmon available, a Subdistrict 5-D commercial fishery was warranted.
3-UY-10-92	July 15	Extended the time allowed to subsistence fishermen to use drift gillnets in the upper portion of Subdistrict 4-A to July 25.	Regulation allowed the use of subsistence drift gillnets as legal fishing gear in that portion of Subdistrict 4-A upstream from the mouth of Stink Creek from June 21 through July 14. To allow additional fishing time, this emergency order extended the allowed period to drift gillnet for subsistence fishing to July 25.
3-UY-11-92	July 17	Closed the commercial salmon fishing season in Subdistrict 4-A, and left Subdistricts 4-B and 4-C on a two 48-hour fishing period per week schedule.	Having exceeded the targeted commercial harvest for summer chum salmon, it was therefore appropriate to close the Subdistrict 4-A season to provide for summer chum salmon escapement.
3-UY-12-92	July 17	Provided for an additional 24-hour subsistence fishing period in Subdistrict 4-A of the Yukon area.	The department allowed subsistence fishermen to begin fishing 24 hours after the last commercial period to allow subsistence fishermen an additional opportunity to meet their subsistence salmon needs.
3-UY-13-92	July 18	This emergency order reduced the previously announced Yukon River Subdistrict 5-D commercial salmon fishing period by six hours.	This emergency order reduced the previously announced Yukon River Subdistrict 5-D commercial salmon period by six hours to avoid exceeding the allowable commercial Subdistrict 5-D harvest.

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E.O. Number	Effective Date	Action Taken	Comments
3-UY-14-92	July 20	Opened the commercial salmon season in District 6 of the Tanana River effective 6:00 p.m. Monday, July 20, and established a commercial fishing schedule of two 42-hour periods per week.	With initial subsistence needs being fulfilled, the early portion of the chinook salmon migration passed through the fishery and allotted for escapement, and a harvestable surplus of chinook and summer chum salmon available, a District 6 commercial fishery was warranted.
3-UY-15-92	July 24	Delayed the second commercial opening in District 6.	Aerial surveys conducted on July 22 indicated chinook salmon were entering the major Tanana River index streams. The numbers of fish observed was still below escapement objectives. A delay in the second commercial fishing period allowed additional chinook salmon within the Tanana River to reach the spawning grounds.
3-UY-16-92	July 25	Closed the Subdistrict 4-B and 4-C early commercial salmon fishing season, and left Subdistrict 4-A closed.	Having reached the reevaluated targeted commercial harvest in Subdistricts 4-B and 4-C, it was appropriate to close the early commercial salmon fishing season to provide for summer chum and chinook salmon escapement.
3-UY-17-92	July 27	Closed the commercial salmon fishing season in District 6 of the Tanana River until further notice.	A continuation of the District 6, Tanana River, commercial fishing closure was necessary to allow the remaining chinook salmon within the Tanana River to reach the spawning grounds.
3-UY-18-92	July 27	Closed the subsistence salmon fishing in District 6 of the Tanana River drainage effective 6:00 p.m. Monday, July 27, 1992, until further notice.	To meet escapement objectives within the Tanana River, the remaining chinook salmon need to be allowed to reach the spawning grounds. A closure of the subsistence salmon fishery was in the best interest of the conservation of the chinook salmon stocks throughout the Tanana River drainage.

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E.O. Number	Effective Date	Action Taken	Comments
3-UY-19-92	July 31	Opened subsistence salmon fishing in Subdistricts 6-A and 6-B on July 31, and Subdistrict 6-C on August 3.	Indications were that greater than 95 percent of the chinook salmon migration would be through Subdistricts 6-A and 6-B by July 21. Test fish wheel catch information indicated that approximately 90 percent of the harvest would be summer chum salmon. A later subsistence opening in Subdistrict 6-C allowed the remaining chinook salmon within Subdistrict 6-C to reach the spawning grounds.
3-UY-20-92	August 3	Established a 42-hour commercial fishing period in Subdistricts 6-A and 6-B beginning August 3.	Indications were that greater than 90 percent of the chinook salmon migration would be through Subdistricts 6-A and 6-B by August 3. Test fish wheel catch information and subsistence fishing information from Subdistrict 6-B indicates that approximately 90 percent of the harvest is summer chum salmon. This emergency order established a Subdistrict 6-A and 6-B commercial opening to allow commercial fishing on the later running summer chum salmon.
3-UY-21-92	August 21	Closed the Yukon area's Subdistricts 4-B, 4-C, District 5, and Subdistrict 6-A commercial salmon fishing season. Subdistrict 4-A remained closed to commercial fishing.	A below average fall chum return was expected due to inadequate numbers of spawners in 1988 for all fall chum spawning index areas except the Delta River. Due to consistently poor numbers of spawners in areas such as the Canadian portion of the Yukon and Porcupine Rivers and the Toklat River, additional stock rebuilding efforts were taken this year. These factors, combined with the below average return actually witnessed so far this year, made it necessary not to reopen commercial salmon fishing for the fall season.

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E.O. Number	Effective Date	Action Taken	Comments
3-UY-22-92	Sept. 7	Established one 42-hour commercial fishing period in Subdistricts 6-B and 6-C beginning September 7.	Fall chum salmon catches at the department contracted Tanana River test fish wheel had been increasing and indicated good salmon passage since late August. Test fish wheel catches, supported by good Tanana River subsistence salmon fishing catch reports, indicated that fall chum salmon were distributed throughout Subdistricts 6-B and 6-C, and warranted a commercial opening.
3-UY-23-92	Sept. 18	Established one 24-hour commercial fishing period in Subdistricts 6-B and 6-C beginning September 18.	Approximately 11,547 fall chum and 2,664 coho salmon were harvested by 25 fishermen during the commercial period on September 7. The 1992 targeted commercial harvest for District 6 was 20,000 fall chum salmon. With indications that the Upper Tanana River fall chum salmon were sufficiently abundant to allow additional commercial harvest, a commercial opening in Subdistricts 6-B and 6-C was warranted.
3-UY-24-92	Sept. 18	Altered the subsistence fishing times in Subdistricts 6-B and 6-C to allow salmon to be taken by subsistence fishermen for a 24-hour period and a 60-hour period instead of the normal two 42-hour periods. The Subdistrict 6-A subsistence salmon schedule remained unaltered.	The normal subsistence fishing schedule allows 84 hours of subsistence fishing per week. To provide for an orderly fishery, the subsistence fishing schedule was altered to coincide with the established 24-hour commercial fishing period. To continue the allowed 84 hours of subsistence fishing per week, the department established a 60-hour subsistence fishing period to compensate for the 18 hours of lost subsistence fishing time.
3-UY-25-92	October 7	Altered the subsistence fishing schedule in District 6, the Tanana River. Current regulations provided a subsistence fishing schedule of two 42-hour periods per week fishing. Effective October 8, salmon could be taken seven days per week.	Colder than normal temperatures and corresponding icing conditions on the Tanana River hampered or precluded subsistence fishing activities since September 23. Warmer temperatures and requests from Tanana River subsistence fishermen for additional subsistence fishing time, contributed to the changed fishing schedule from two 42-hour periods per week, to seven days per week.

Appendix D.2. List of Upper Yukon Area salmon Processors and associated data, 1992.

Buyer/Processors a		
Commercial operation (Processing location/ buying station)	Product	District
Alaska Pacific Caviar, Inc. 3200 N. E. 125 St. Suite 1 Seattle, WA 98125 (Aniak, Anvik, Grayling)	Frozen Salmon Chinook Chum Salmon Roe	4
Dainty Island Fisheries PO Box 49 Galena, AK 99741 (Galena)	Smoked Salmon Chinook Chum	4
Great Northern Sea Products, Inc. 2611-B Fairbanks St. Anchorage, AK 99503 (Galena)	Salmon Roe	4
Kalland's Fisheries PO Box 51 Nenana, AK 99760 (Kalland's)	Fresh/Frozen Salmon Chinook Chum Coho	4
Whitney Foods PO Box 190429 Anchorage, AK 99519 (Kaltag)	Frozen Salmon Chinook Chum Coho Salmon Roe	4
Towa America, Inc. 424 East Manor Ave. Anchorage, AK 99501 (Galena, Anvik, Ruby)	Frozen Salmon Chinook Chum Coho Salmon Roe	4 and 5
Interior Alaska Fish Processors, Inc. 878 Lynnwood Way North Pole, AK 99705 (North Pole, Fairbanks, Nenana)	Frozen Salmon Smoked Salmon Chinook Chum Coho Salmon Roe	4,5, and 6

-Continued-

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Buyer/Processors [a]		
Commercial operation (Processing location/ buying station)	Product	District
Yutana Fisheries 1477 Shypoke Fairbanks, AK 99709 (Manley)	Frozen Salmon Chinook Chum Coho Salmon Roe	5 and 6
Arctic Circle Fish, Co. PO Box 18 Circle, AK 99733 (Circle)	Frozen Salmon Chinook Chum Salmon Roe	5
Denny Mac Enterprises, Inc. PO Box 943 Sumner, WA 98390 (Nenana)	Frozen Salmon Chinook Chum Coho Salmon Roe	6
Steven's Fisheries PO Box 38 Nenana, AK 99760 (Nenana)	Frozen Salmon Chinook Chum Coho	6

a Buyer/Processors are those businesses who registered to purchase and process salmon caught in the Upper Yukon Area.

Appendix D.3. Upper Yukon Area Commercial Fisheries Entry Commission permits issued by residence, 1992. a b

Residence	Gill Net Permits	Fish Wheel Permits	Total
Anchorage	2	0	2
Anchor Point	0	3	3
Aniak	1	0	1
Anvik	3	8	11
Barrow	0	1	1
Cantwell	1	0	1
Circle City	1	1	2
Comstock	0	1	1
Fairbanks	23	21	44
Fort Yukon	0	1	1
Galena	5	29	34
Grayling	6	5	11
Healy	0	1	1
Holy Cross	1	0	1
Houston	1	0	1
Huslia	0	1	1
Kaltag	3	14	17
Kodiak	1	0	1
Koyukuk	0	2	2
Manley H.S.	2	6	8
Nenana	6	20	26
Nome	1	0	1
North Pole	1	1	2
Nulato	0	18	18
Palm Desert	1	0	1
Rampart	4	2	6
Ruby	3	10	13
Salcha	0	1	1
Soldotna	1	0	1
Stevens Village	0	3	3
Tanana	4	15	19
Wasilla	0	1	1
Total Upper Yukon	71	165	236

a Counts are for initial issues only and do not include transfers. Counts include interim use permits.

b As of December 22, 1992.

Appendix D.4. Commercial salmon sales by statistical area, all gears combined, Upper Yukon Area, 1992. a b

SET GILLNET AND FISH WHEEL COMBINED

Statistical Area	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated
334-42	12	623	482	818	1,363	9,010	17,636 d	0	0	0	0	0	0
334-43	13	1,028	1,705	1,526	1,296	2,098	9,589 d	0	0	0	0	0	0
334-44	12	0	0	0	0	20,444	35,575 d	0	0	0	0	0	0
334-45	24	0	15	9	0	35,312	66,605 d	0	0	0	0	0	0
334-46	37	0	71	41	0	43,945	81,991 d	0	0	0	0	0	0
Subtotal District 4	73	1,651	2,273	2,394	2,659	110,809	211,396 d	0	0	0	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0
334-52	9	1,276	7	1,279	30	295	358	0	0	0	0	0	0
334-53	18	2,119	0	2,119	72	0	72	0	0	0	0	0	0
334-54	0	0	0	0	0	0	0	0	0	0	0	0	0
334-55	3	457	0	457	0	0	0	0	0	0	0	0	0
Subtotal District 5	28	3,852	7	3,855	102	295	430	0	0	0	0	0	0
334-61	4	39	0	39	1,327	0	1,327	0	0	0	0	0	0
334-62	17	371	679	510	3,446	1,684	5,409	13,713	1,816	15,852	5,731	1,267	6,800
334-63	5	162	205	204	256	208	492	2,008	990	3,170	825	413	1,179
Subtotal District 6	25	572	884	753	5,029	1,892	7,228	15,721	2,806	19,022	6,556	1,680	7,979
Total Upper Yukon Area	143	6,075	3,164	7,002	7,790	112,996	219,054	15,721	2,806	19,022	6,556	1,680	7,979

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, the estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.
b Does not include department test fish sales.
c Number of unique permits fished by statistical area, district or area. Totals may not add up due to transferes betwwen statistical areas.
d The estimated harvest of summer chum salmon for Statistical Areas within District 4 is the estimated number of males and females harvested to produce the roe sold.

Appendix D.5. Commercial set gillnet salmon sales by statistical area, Upper Yukon Area, 1992. a b

SET GILLNET

Statistical Area	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated
334-42	3	139	196	220	430	133	722 d	0	0	0	0	0	0
334-43	2	281	340	380	0	42	117 d	0	0	0	0	0	0
334-44	6	0	0	0	0	14,581	24,973 d	0	0	0	0	0	0
334-45	3	0	0	0	0	4,655	7,861 d	0	0	0	0	0	0
334-46	3	0	0	0	0	868	1,466 d	0	0	0	0	0	0
Subtotal District 4	17	420	536	600	430	20,279	35,139 d	0	0	0	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0
334-52	2	526	7	529	0	16	17	0	0	0	0	0	0
334-53	11	1,177	0	1,177	14	0	14	0	0	0	0	0	0
334-54	0	0	0	0	0	0	0	0	0	0	0	0	0
334-55	1	61	0	61	0	0	0	0	0	0	0	0	0
Subtotal District 5	13	1,764	7	1,767	14	16	31	0	0	0	0	0	0
334-61	2	8	0	8	509	0	509	0	0	0	0	0	0
334-62	0	0	0	0	0	0	0	0	0	0	0	0	0
334-63	0	0	0	0	0	0	0	0	0	0	0	0	0
Subtotal District 6	2	8	0	8	509	0	509	0	0	0	0	0	0
Total Upper Yukon Area	32	2,192	543	2,375	953	20,295	35,679	0	0	0	0	0	0

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, the estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.
b Does not include department test fish sales.
c Number of unique permits fished by statistical area, district or area. Totals may not add up due to transferes betwwen statistical areas.
d The estimated harvest of summer chum salmon for Statistical Areas within District 4 is the estimated number of males and females harvested to produce the roe sold.

Appendix D.6. Commercial fish wheel salmon sales by statistical area, Upper Yukon Area, 1992. a b

FISH WHEEL

Statistical Area	Number of Fishermen c	Chinook			Summer Chum			Fall Chum			Coho		
		Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated	Number	Roe	Estimated
334-42	9	484	286	598	933	8,877	16,914 d	0	0	0	0	0	0
334-43	11	747	1,365	1,146	1,296	2,056	9,472 d	0	0	0	0	0	0
334-44	6	0	0	0	0	5,863	10,602 d	0	0	0	0	0	0
334-45	21	0	15	9	0	30,657	58,744 d	0	0	0	0	0	0
334-46	34	0	71	41	0	43,077	80,525 d	0	0	0	0	0	0
Subtotal District 4	73	1,231	1,737	1,794	2,229	90,530	176,257	0	0	0	0	0	0
334-51	0	0	0	0	0	0	0	0	0	0	0	0	0
334-52	7	750	0	750	30	279	341	0	0	0	0	0	0
334-53	7	942	0	942	58	0	58	0	0	0	0	0	0
334-54	0	0	0	0	0	0	0	0	0	0	0	0	0
334-55	2	396	0	396	0	0	0	0	0	0	0	0	0
Subtotal District 5	15	2,088	0	2,088	88	279	399	0	0	0	0	0	0
334-61	2	31	0	31	818	0	818	0	0	0	0	0	0
334-62	17	371	679	510	3,446	1,684	5,409	13,713	1,816	15,852	5,731	1,267	6,800
334-63	5	162	205	204	256	208	492	2,008	990	3,170	825	413	1,179
Subtotal District 6	23	564	884	745	4,520	1,892	6,719	15,721	2,806	19,022	6,556	1,680	7,979
Total Upper Yukon Area	32	3,883	2,621	4,627	6,837	92,701	183,375	15,721	2,806	19,022	6,556	1,680	7,979

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Unless otherwise noted, the estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.
b Does not include department test fish sales.
c Number of unique permits fished by statistical area, district or area. Totals may not add up due to transferes betwwen statistical areas.
d The estimated harvest of summer chum salmon for Statistical Areas within District 4 is the estimated number of males and females harvested to produce the roe sold.

Appendix D.7. Estimated commercial chinook salmon harvest taken under guideline harvest ranges, Upper Yukon Area, 1974 - 1992.

Year	District 4		District 5		Subdistricts 5-ABC		Subdistricts 5-D		Districts 6	
	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range
1974	685	1,000	2,663	3,000	-	-	-	-	1,473	1,000
1975	389	1,000	2,872	3,000	-	-	-	-	500	1,000
1976	409	1,000	3,151	3,000	-	-	-	-	1,102	1,000
1977	985	1,000	4,162	3,000	-	-	-	-	1,008	1,000
1978	608	1,000	3,079	3,000	-	-	-	-	635	1,000
1979 b	1,989	900 - 1,100	3,389	2,700 - 3,300	-	-	-	-	772	900 - 1,100
1980	1,521	900 - 1,100	4,891	2,700 - 3,300	-	-	-	-	1,947	900 - 1,100
1981	1,347	2,250 - 2,850	-	-	5,625	2,400 - 2,800	749	300 - 500	987	600 - 800
1982	1,087	2,250 - 2,850	-	-	4,690	2,400 - 2,800	695	300 - 500	981	600 - 800
1983	601	2,250 - 2,850	-	-	3,370	2,400 - 2,800	236	300 - 500	911	600 - 800
1984	961	2,250 - 2,850	-	-	3,285	2,400 - 2,800	384	300 - 500	867	600 - 800
1985	664	2,250 - 2,850	-	-	2,984	2,400 - 2,800	434	300 - 500	1,142	600 - 800
1986	502	2,250 - 2,850	-	-	2,427	2,400 - 2,800	306	300 - 500	950	600 - 800
1987	1,524	2,250 - 2,850	-	-	2,539	2,400 - 2,800	566	300 - 500	1,202	600 - 800
1988	3,159	2,250 - 2,850	-	-	2,975	2,400 - 2,800	461	300 - 500	762	600 - 800
1989	2,790	2,250 - 2,850	-	-	2,901	2,400 - 2,800	385	300 - 500	1,741	600 - 800
1990	3,538	2,250 - 2,850	-	-	2,822	2,400 - 2,800	543	300 - 500	2,156	600 - 800
1991	3,582	2,250 - 2,850	-	-	3,272	2,400 - 2,800	554	300 - 500	1,072	600 - 800
1992	2,394	2,250 - 2,850	-	-	3,398	2,400 - 2,800	457	300 - 500	753	600 - 800

a The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.
b In 1979, quotas were replaced by guideline harvest ranges.

Appendix D.8. Estimated commercial summer chum salmon harvest taken under guideline harvest ranges, Upper Yukon Area, 1990 - 1992.

	Subdistrict 4-A		Subdistricts 4-BC		Districts 5		Districts 6	
Year	Harvest a	Guideline Harvest Range	Harvest b	Guideline Harvest Range	Harvest b	Guideline Harvest Range	Harvest b	Guideline Harvest Range
1990	197,621	113,000 - 338,000	13,420	16,000 - 47,000	671	1,000 - 3,000	14,833	13,000 - 38,000
1991	290,255	113,000 - 338,000	10,869	16,000 - 47,000	35	1,000 - 3,000	23,892	13,000 - 38,000
1992	184,171	113,000 - 338,000	27,225	16,000 - 47,000	430	1,000 - 3,000	7,228	13,000 - 38,000

a The estimated harvest is the estimated number of males and females harvested to produce the roe sold.
b The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. In Subdistricts 4-B and 4-C, since 1992, the harvest is the estimated number of males and females harvested to produce the roe sold.

Appendix D.9. Estimated commercial fall chum and coho salmon combined harvest taken under guideline harvest ranges, Upper Yukon Area, 1974 - 1992.

	District 4		Subdistricts 4-BC		District 5		Subdistricts 5-ABC		Subdistricts 5-D		Districts 6	
Year	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range	Harvest a	Quota or Guideline Harvest Range
1974	9,213	10,000	-	-	24,960	25,000	-	-	-	-	28,363	15,000
1975	13,666	10,000	-	-	27,217	25,000	-	-	-	-	18,745	15,000
1976	1,742	10,000	-	-	5,389	25,000	-	-	-	-	19,051	15,000
1977	13,980	10,000	-	-	25,731	25,000	-	-	-	-	19,957	15,000
1978	12,741	10,000	-	-	26,236	25,000	-	-	-	-	20,012	15,000
1979 b	-	-	52,253	10,000 - 40,000	55,556	10,000 - 40,000	-	-	-	-	44,146	7,500 - 22,500
1980	-	-	32,355	10,000 - 40,000	42,376	10,000 - 40,000	-	-	-	-	20,746	7,500 - 22,500
1981	-	-	13,393	10,000 - 40,000	93,575	-	c	8,000 - 36,000	c	2,000 - 4,000	31,292	5,500 - 20,500
1982	-	-	4,076	10,000 - 40,000	13,635	-	c	8,000 - 36,000	c	2,000 - 4,000	15,196	5,500 - 20,500
1983	-	-	6,445	10,000 - 40,000	-	-	40,901	8,000 - 36,000	3,092	2,000 - 4,000	43,358	5,500 - 20,500
1984	-	-	10,935	10,000 - 40,000	-	-	21,147	8,000 - 36,000	2,970	2,000 - 4,000	28,308	5,500 - 20,500
1985	-	-	27,915	10,000 - 40,000	-	-	23,160	8,000 - 36,000	2,178	2,000 - 4,000	54,114	5,500 - 20,500
1986	-	-	2,045	0 - 20,000	-	-	21,105	0 - 18,000	1,343	0 - 2,000	2,515	0 - 10,250
1987	-	-	0	0 - 20,000	-	-	0	0 - 18,000	0	0 - 2,000	0	0 - 10,250
1988	-	-	17,085	0 - 20,000	-	-	14,217	0 - 18,000	2,780	0 - 2,000	37,622	0 - 10,250
1989	-	-	15,186	0 - 20,000	-	-	18,976	0 - 18,000	3,312	0 - 2,000	72,527	0 - 10,250
1990	-	-	8,166	5,000 - 40,000	-	-	6,243	4,000 - 36,000	2,733	1,000 - 4,000	65,779	2,750 - 20,500
1991	-	-	6,105	5,000 - 40,000	-	-	28,900	4,000 - 36,000	3,214	1,000 - 4,000	54,222	2,750 - 20,500
1992	-	-	0	5,000 - 40,000	-	-	0	4,000 - 36,000	0	1,000 - 4,000	27,001	2,750 - 20,500

a The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.
b In 1979, quotas were replaced by guideline harvest ranges.
c Information not available.

Appendix D.10. Commercial salmon fishing effort by statistical area and gear type, Upper Yukon Area, 1992.

Statistical Area	Early Season a			Late Season a			Combined Seasons a		
	Set Gillnet	Fish Wheel	Subtotal	Set Gillnet	Fish Wheel	Subtotal	Set Gillnet	Fish Wheel	Total
334-42	3	9	12	0	0	0	3	9	12
334-43	2	11	13	0	0	0	2	11	13
Subtotal	5	17	22	0	0	0	5	17	22
334-44	6	6	12	-	-	-	6	6	12
334-45	3	21	24	-	-	-	3	21	24
334-46	3	34	37	-	-	-	3	34	37
Subtotal b	12	59	71	-	-	-	12	59	71
Subtotal District 4	17	73	90	0	0	0	17	73	90
334-51	0	0	0	0	0	0	0	0	0
334-52	2	7	9	0	0	0	2	7	9
334-53	11	7	18	0	0	0	11	7	18
Subtotal	12	13	25	0	0	0	12	13	25
334-54	0	0	0	0	0	0	0	0	0
334-55	1	2	3	0	0	0	1	2	3
Subtotal	1	2	3	0	0	0	1	2	3
Subtotal District 5	13	15	28	0	0	0	13	15	28
334-61	2	2	4	0	0	0	2	2	4
334-62	0	12	12	0	17	17	0	17	17
334-63	0	3	3	0	5	5	0	5	5
Subtotal District 6	2	17	19	0	22	22	2	23	25
Total Upper Yukon Area	32	105	137	0	22	22	32	111	143

a Number of unique permits fished by district, subdistrict or statistical area. Permits are allowed to transfer between statistical areas within a districts.

b Subdistrict 4-A (Statistical Areas 334-44, 334-45 and 334-46), by regulation, does not have a late season.

Appendix D.11. Comparison of permits issued to permits that fished, Upper Yukon Area, 1974 - 1992.

Year	Permits that Fished a			Permits Issued b			Percentage of Permits That Fished		
	Set Gillnet	Fish Wheel	Total	Set Gillnet	Fish Wheel	Total	Set Gillnet	Fish Wheel	Total
1974	c	c	98	c	c	c	c	c	c
1975	c	c	198	c	c	c	c	c	c
1976	c	c	214	118	169	287	c	c	75
1977	44	130	188	69	160	229	64	81	82
1978	47	137	173	71	158	229	66	87	76
1979	50	129	179	70	165	235	71	78	76
1980	52	128	177	71	163	234	73	79	76
1981	45	125	181	70	162	232	64	77	78
1982	45	111	156	76	166	242	59	67	64
1983	40	115	157	73	164	237	55	70	66
1984	39	99	136	73	159	232	53	62	59
1985	40	113	157	71	159	230	56	71	68
1986	30	101	132	71	161	232	42	63	57
1987	33	108	141	71	161	232	46	67	61
1988	43	124	170	71	160	231	61	78	74
1989	42	127	169	70	160	230	60	79	73
1990	35	116	153	71	157	228	49	74	67
1991	36	110	146	77	157	234	47	70	62
1992 d	32	111	143	71	165	236	45	67	61
Previous Five Year Average 1987-1991	38	117	156	72	159	231	52%	74%	67%

a Permits that participated in the fishery by making at least one landing.

b Includes permanent and interim-use permits. Information obtained from the Commercial Fisheries Entry Commission.

c Information not avaiable.

d Permit issued information as of December 22, 1992.

Appendix D 12 Price paid per pound and estimated exvessel value of the commercial salmon harvest by specie, Upper Yukon Area, 1977 1992

	Chinook			Summer Chum			Fall Chum			Coho			
	Price per Pound a		Value c	Price per Pound a		Value c	Price per Pound a		Value c	Price per Pound a		Value c	
Year	Fish	Roe b		Fish	Roe b		Fish	Roe b		Fish	Roe b		Total Value c
1977	1 37	–	148,766	0 27	2 66	306,461	0 22	2 66	102,170	0 27	–	2,251	$559,668
1978	0 87	–	66,472	0 24	d	655,738	0 25	d	103,091	0 24	–	6,105	$831,406
1979	1 00	–	124,230	0 25	3 00	444,924	0 29	3 00	347,814	0 25	–	6,599	$923,567
1980	0 85	–	113,682	0 23	2 50	627,249	0 27	2 50	198,088	0 29	–	2,374	$941,393
1981	1 00	–	206,380	0 20	3 00	699,676	0 35	3 00	356,805	0 35	–	4,566	$1,267,629
1982	1 02	–	162,699	0 18	2 75	452,837	0 28	2 75	53,258	0 37	–	18,786	$687,580
1983	1 08	–	105,584	0 16	1 66	281,883	0 19	1 66	128,950	0 31	–	11,472	$527,889
1984	0 95	–	102,354	0 23	1 78	382,776	0 26	1 78	103,417	0 24	–	12,823	$601,370
1985	0 86	–	82,644	0 23	1 94	593,801	0 25	1 94	178,125	0 33	–	26,797	$881,367
1986	0 89	–	73,363	0 22	2 08	634,091	0 14	2 08	30,309	0 21	–	556	$738,319
1987 e	0 79	–	136,196	0 19	2 22	323,611	–	–	0	–	–	0	$459,807
1988	1 04	–	142,284	0 23	4 33	1,213,991	0 32	4 33	151,300	0 37	–	34,116	$1,541,691
1989	0 84	–	106,178	0 24	4 41	1,377,117	0 28	4 41	223,996	0 35	–	33,959	$1,743,250
1990	0 66	d	105,295	0 15	4 42	506,611	0 34	3 69	174,965	0 34	d	37,026	$823,897
1991	0 70	2 93	97,140	0 18	4 21	627,177	0 23	3 26	157,831	0 30	2 50	21,558	$903,706
1992	0.91	2.82	168,999	0 30	4.53	525,204	0 39	4 50	54,161	0 39	2 16	19,529	$767,893
Previous Five Year Average 1987–1991	$0 81	–	$117,819	$0 20	$3 92	$809,701	$0.23	$3.14	141,618	$0 27	–	$25,332	$1,094,470

a Average price per pound weighted by fish ticket.
b Since 1990, efforts were made to seperate chinook and coho salmon roe from chum salmon roe sold.
c Value of the fisheries is based on the price paid at the time of the sale as indicated on fish tickets. These values do not include any retroactive payments.
d Information not available.
e No commercial fall season.

COMMERCIAL

APPENDIX E

YUKON AREA
COMMERCIAL SALMON FISHERY

Appendix B.1. Estimated commercial chinook salmon sales by district, Yukon Area, 1961-1992.

Year	Lower Yukon Area b: District 1	Lower Yukon Area b: District 2	Lower Yukon Area b: District 3	Lower Yukon Area b: Subtotal	Upper Yukon Area a: District 4: Number	Upper Yukon Area a: District 4: Roe	Upper Yukon Area a: District 4: Estimated Harvest c	Upper Yukon Area a: District 5: Number	Upper Yukon Area a: District 5: Roe	Upper Yukon Area a: District 5: Estimated Harvest c	Upper Yukon Area a: District 6: Number	Upper Yukon Area a: District 6: Roe	Upper Yukon Area a: District 6: Estimated Harvest c	Upper Yukon Area a: Subtotal: Number	Upper Yukon Area a: Subtotal: Roe	Upper Yukon Area a: Subtotal: Estimated Harvest c	Total Yukon Area Estimated Harvest c
1961	84,466	29,026	4,368	117,860	1,804	-	1,804	-	-	-	-	-	-	1,804		1,804	119,664
1962	67,099	22,224	4,687	94,010	724	-	724	-	-	-	-	-	-	724		724	94,734
1963	85,004	24,221	7,020	116,245	803	-	803	-	-	-	-	-	-	803		803	117,048
1964	67,555	20,246	4,705	92,506	1,081	-	1,081	-	-	-	-	-	-	1,081		1,081	93,587
1965	89,268	23,763	3,204	116,235	1,863	-	1,863	-	-	-	-	-	-	1,863		1,863	118,098
1966	70,788	16,927	3,612	91,327	1,988	-	1,988	-	-	-	-	-	-	1,988		1,988	93,315
1967	104,350	20,239	3,618	128,207	1,449	-	1,449	-	-	-	-	-	-	1,449		1,449	129,656
1968	79,465	21,392	4,543	105,400	1,126	-	1,126	-	-	-	-	-	-	1,126		1,126	106,526
1969	71,688	14,756	3,595	90,039	988	-	988	-	-	-	-	-	-	988		988	91,027
1970	56,648	17,141	3,705	77,494	1,651	-	1,651	-	-	-	-	-	-	1,651		1,651	79,145
1971	86,042	19,226	3,490	108,758	1,749	-	1,749	-	-	-	-	-	-	1,749		1,749	110,507
1972	70,052	17,855	3,841	91,748	1,092	-	1,092	-	-	-	-	-	-	1,092		1,092	92,840
1973	56,981	13,859	3,204	74,044	1,309	-	1,309	-	-	-	-	-	-	1,309		1,309	75,353
1974 d	71,840	17,948	3,480	93,268	685	-	685	2,663	-	2,663	1,473	-	1,473	4,821		4,821	98,089
1975	44,585	11,315	4,177	60,077	389	-	389	2,872	-	2,872	500	-	500	3,761		3,761	63,838
1976	62,610	16,556	4,148	83,114	409	-	409	3,151	-	3,151	1,102	-	1,102	4,662		4,662	87,776
1977	69,915	16,722	3,965	90,602	985	-	985	4,162	-	4,162	1,008	-	1,008	6,155		6,155	96,757
1978	59,006	32,924	2,916	94,846	608	-	608	3,079	-	3,079	635	-	635	4,322		4,322	99,168
1979	75,007	41,498	5,018	121,523	1,989	-	1,989	3,389	-	3,389	772	-	772	6,150		6,150	127,673
1980	90,382	50,004	5,240	145,626	1,521	-	1,521	4,891	-	4,891	1,947	-	1,947	8,359		8,359	153,985
1981	98,194	45,781	4,023	147,998	1,347	-	1,347	6,374	-	6,374	987	-	987	8,708		8,708	156,706
1982	73,980	39,132	2,609	115,721	1,087	-	1,087	5,385	-	5,385	981	-	981	7,453		7,453	123,174
1983	96,451	43,229	4,106	141,786	601	-	601	3,606	-	3,606	911	-	911	5,118		5,118	146,904
1984	73,582	36,697	3,039	113,318	961	-	961	3,669	-	3,669	867	-	867	5,497		5,497	118,815
1985	89,299	48,365	2,588	140,252	664	-	664	3,418	-	3,418	1,142	-	1,142	5,224		5,224	145,476
1986	52,333	41,849	901	95,083	502	-	502	2,733	-	2,733	950	-	950	4,185		4,185	99,268
1987	75,441	47,458	2,039	124,938	1,524	-	1,524	3,758 e	-	3,758	3,338 f	-	3,338	8,620		8,620	133,558
1988	56,120	35,120	1,767	93,007	3,159	-	3,159	3,436	-	3,436	762	-	762	7,357		7,357	100,364
1989	58,359	33,166	1,645	93,170	2,790	-	2,790	3,286	-	3,286	1,741	-	1,741	7,817		7,817	100,987
1990	50,098	33,061	2,341	85,500	3,536	8	3,538	3,353	47	3,365	1,757	1,676	2,156	8,646	1,731	9,059	94,559
1991	56,332 g	39,260 h	2,344	97,936	2,446	2,222	3,582	3,810	62	3,826	686	1,545	1,072	6,942	3,829	8,480	106,416
1992	74,212 i	38,139 j	1,819	114,170	1,651	2,273	2,394	3,852	7	3,855	572	884	752	6,075	3,164	7,001	121,171
Previous Five Year Average 1987-1991	59,270	37,613	2,027	98,910	2,691	-	2,919	3,529	-	3,534	1,657	-	1,814	7,876	-	8,267	107,177

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Since 1990, efforts were made to seperate the chinook salmon roe from the summer chum salmon roe sold. Does not include department test fish sales. Includes illegal sales.
b All sales are fish in the round. Does not include department test fish sales. Estimated test fish sales of 1,312, 470 and 1,006 chinook salmon in District 1 for the years 1981, 1982 and 1983, respectively. Include illegal sales.
c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.
d In 1974, District 4 was subdivided to include District 5 and 6.
e Includes the illegal sales of 653 chinook salmon.
f Includes the illegal sales of 2,136 chinook salmon.
g Includes the illegal sales of 2,711 chinook salmon.
h Includes the illegal sales of 284 chinook salmon.
i Includes the illegal sales of 1,218 chinook salmon.
j Includes the illegal sales of 207 chinook salmon.

Appendix E.2. Estimated commercial summer chum salmon sales by district, Yukon Area, 1961-1992.

	Lower Yukon Area b				Upper Yukon Area a											
					District 4			District 5			District 6			Subtotal			
Year	District 1	District 2	District 3	Subtotal	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Total Yukon Area Estimated Harvest c
1961	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1962	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1963	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1964	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1965	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1966	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1967	9,453	1,425	57	10,935	0	0	0	-	-	-	-	-	-	0	0	0	10,935
1968	12,995	1,407	68	14,470	0	0	0	-	-	-	-	-	-	0	0	0	14,470
1969	56,886	5,080	0	61,966	0	0	0	-	-	-	-	-	-	0	0	0	61,966
1970	117,357	19,649	0	137,006	0	0	0	-	-	-	-	-	-	0	0	0	137,006
1971	93,928	6,112	50	100,090	0	0	0	-	-	-	-	-	-	0	0	0	100,090
1972	114,234	20,907	527	135,668	0	0	0	-	-	-	-	-	-	0	0	0	135,668
1973	221,644	63,402	463	285,509	0	0	0	-	-	-	-	-	-	0	0	0	285,509
1974 d	466,004	74,152	1,721	541,877	27,866	0	27,866	6,831	0	6,831	13,318	0	13,318	48,015	0	48,015	589,892
1975	418,323	99,139	0	517,462	165,054	0	165,054	12,997	0	12,997	14,782	0	14,782	192,833	0	192,833	710,295
1976	273,204	99,190	9,802	382,196	211,307	0	211,307	774	0	774	6,617	0	6,617	218,698	0	218,698	600,894
1977	250,652	105,679	3,412	359,743	169,541	0	169,541	1,274	0	1,274	4,317	0	4,317	175,132	0	175,132	534,875
1978	393,785	227,548	27,003	648,336	364,184	16,920	381,104	4,892	605	5,497	34,814	8,236	43,050	403,890	25,761	429,651	1,077,987
1979	369,934	172,838	40,015	582,787	169,430	35,317	204,747	8,608	1,009	9,617	18,491	3,891	22,382	196,529	40,217	236,746	819,533
1980	391,252	308,704	44,782	744,738	147,560	135,824	283,384	456	0	456	35,855	3,282	39,137	183,871	139,106	322,977	1,067,715
1981	503,776	351,878	54,471	910,125	59,718	187,032	33,045	1,236	49	1,285	32,477	1,987	34,464	93,431	189,068	68,794	978,919
1982	248,280	182,344	4,086	434,710	3,647	151,281	257,719	213	21	234	21,597	1,517	23,114	25,457	152,819	281,067	715,777
1983	448,748	248,092	14,600	711,440	6,672	148,125	255,388	42	1,856	1,898	24,309	18	24,327	31,023	149,999	281,613	993,053
1984	290,454	236,931	1,087	528,472	1,009	166,842	278,070	645	47	692	56,249	335	56,584	57,903	167,224	335,346	863,818
1985	245,389	188,099	1,792	435,280	12,007	247,085	427,483	700	0	700	66,913	1,540	68,453	79,620	248,625	496,636	931,916
1986	378,892	288,427	442	667,761	300	269,545	465,535	690	0	690	50,483	2,146	52,629	51,473	271,691	518,854	1,186,615
1987	220,514	174,876	3,501	398,891	29,991	121,474	209,800	362	44	406	10,610	450	11,060	40,963	121,968	221,266	620,157
1988	645,322	424,461	13,965	1,083,748	24,051	254,526	490,074	722	363	1,085	40,129	1,646	41,775	64,902	256,535	532,934	1,616,682
1989	544,223	343,032	7,578	894,833	18,554	283,305	510,244	154	373	527	42,115	4,871	46,986	60,823	288,549	557,757	1,452,590
1990	146,725	131,755	643	279,123	12,364	105,723	218,029	11	594	671	11,127 e	3,059	14,833	23,502	109,376	233,533	512,656
1991	160,470 f	175,149	8,912	324,531	6,381	137,232	306,550	4	28	35	18,197	4,716	23,892	24,582	141,976	330,477	655,008
1992	177,329 g	147,129 h	65	324,523	2,659	110,809	211,396	102	295	430	5,029	1,892	7,228	7,790	112,996	219,054	543,577
Previous Five Year Average 1987-1991	339,451	249,855	6,920	596,225	18,268	180,452	346,939	251	280	545	24,436	2,948	27,709	42,954	183,681	375,193	971,419

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Prior to 1990, roe sales may include small amounts of chinook salmon roe. Since 1990, efforts were made to seperate chinook salmon roe from the summer chum salmon roe sold. Does not include department test fish sales.

b All sales are fish in the round. Does not include department test fish sales. Estimated test fish sales in 1981, 1982 and 1983 was not seperated by summer or fall chum salmon. All chum salmon sold were assumed to be summer chum salmon in those years. Include illegal sales.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold. Additionaly, the estimated District 4 harvest includes the estimated number of unsold males harvested in District 4.

d In 1974, District 4 was subdivided to include District 5 and 6.

e Does not include 1,233 female summer chum salmon sold in Subdistrict 6-C with roe extracted and roe sold separately. Females are accounted for in the roe expansion to estimate the number of females to produce the roe sold.

f Includes the illegal sales of 1,023 summer chum salmon.

g Includes the illegal sales of 31 summer chum salmon.

h Includes the illegal sales of 91 summer chum salmon.

Appendix E.3. Estimated commercial fall chum salmon sales by district, Yukon Area, 1961-1992.

	Lower Yukon Area b				Upper Yukon Area a											
					District 4			District 5			District 6			Subotal			
Year	District 1	District 2	District 3	Subtotal	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Total Yukon Area Estimated Harvest c
1961	42,461	0	0	42,461	0	0	0	-	-	-	-	-	-	0	0	0	42,461
1962	53,116	0	0	53,116	0	0	0	-	-	-	-	-	-	0	0	0	53,116
1963	0	0	0	0	0	0	0	-	-	-	-	-	-	0	0	0	0
1964	8,347	0	0	8,347	0	0	0	-	-	-	-	-	-	0	0	0	8,347
1965	22,936	0	0	22,936	381	0	381	-	-	-	-	-	-	381	0	381	23,317
1966	69,836	0	1,209	71,045	0	0	0	-	-	-	-	-	-	0	0	0	71,045
1967	36,451	0	1,823	38,274	0	0	0	-	-	-	-	-	-	0	0	0	38,274
1968	49,857	0	3,068	52,925	0	0	0	-	-	-	-	-	-	0	0	0	52,925
1969	128,866	0	1,722	130,588	722	0	722	-	-	-	-	-	-	722	0	722	131,310
1970	200,306	4,858	3,285	208,449	1,146	0	1,146	-	-	-	-	-	-	1,146	0	1,146	209,595
1971	188,533	0	0	188,533	1,061	0	1,061	-	-	-	-	-	-	1,061	0	1,061	189,594
1972	136,711	12,898	1,313	150,922	1,254	0	1,254	-	-	-	-	-	-	1,254	0	1,254	152,176
1973	173,783	45,304	0	219,087	13,003	0	13,003	-	-	-	-	-	-	13,003	0	13,003	232,090
1974 d	176,036	53,540	552	230,128	9,213	0	9,213	23,551	0	23,551	26,884	0	26,884	59,648	0	59,648	289,776
1975	158,183	51,666	5,590	215,439	13,666	0	13,666	27,212	0	27,212	18,692	0	18,692	59,570	0	59,570	275,009
1976	105,851	21,212	4,250	131,313	1,742	0	1,742	5,387	0	5,387	17,948	0	17,948	25,077	0	25,077	156,390
1977	131,758	51,994	15,851	199,603	13,980	0	13,980	25,730	0	25,730	18,673	0	18,673	58,383	0	58,383	257,986
1978	127,947	51,646	11,527	191,120	10,988	1,721	12,709	21,016	5,220	26,236	13,259	3,687	16,946	45,263	10,628	55,891	247,011
1979	109,406	94,042	25,955	229,403	48,899	3,199	52,098	47,459	8,097	55,556	34,185	7,170	41,355	130,543	18,466	149,009	378,412
1980	106,829	83,881	13,519	204,229	27,978	4,347	32,325	41,771	605	42,376	19,452	68	19,520	89,201	5,020	94,221	298,450
1981	167,834	154,883	19,043	341,760	12,082	1,311	13,393	86,620	6,955	93,575	25,989	3,019	29,008	124,691	11,285	135,976	477,736
1982	97,484	96,581	5,815	199,880	3,894	167	4,061	13,593	42	13,635	6,820	596	7,416	24,307	805	25,112	224,992
1983	124,371	85,645	10,018	220,034	4,482	1,963	6,445	43,993	0	43,993	34,089	3,101	37,190	82,564	5,064	87,628	307,662
1984	78,457	70,803	6,429	155,689	7,625	2,215	9,840	24,060	57	24,117	20,564	56	20,620	52,249	2,328	54,577	210,266
1985	129,506	40,490	5,164	175,160	24,452	2,525	26,977	25,338	0	25,338	42,352	0	42,352	92,142	2,525	94,667	269,827
1986	58,598	51,307	2,793	112,698	2,045	0	2,045	22,053	395	22,448	1,892	182	2,074	25,990	577	26,567	139,265
1987	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1988	44,890	31,845	2,090	78,825	15,662	1,421	17,083	16,989	0	16,989	21,844	1,806	23,650	54,495	3,227	57,722	136,547
1989	74,235	97,558	15,332	187,125	11,776	3,407	15,183	18,215	3,989	22,204	49,090	7,353	56,443	79,081	14,749	93,830	280,955
1990	25,269	37,077	3,715	66,061	4,989	2,351	8,166	7,778	1,058	8,976	43,182 e	7,535	50,975	55,949 e	10,944	68,117	134,178
1991	59,724	102,628	9,213	171,565	3,737	1,616	6,091	27,355	3,625	32,114	28,195	14,154	44,448	59,287	19,395	82,653	254,218
1992	0	0	0	0	0	0	0	0	0	0	15,721	2,806	19,022	15,721	2,806	19,022	19,022
Previous Five Year Average 1987-1991	40,824	53,822	6,070	100,715	7,233	1,759	9,305	14,067	1,734	16,057	28,462	6,170	35,103	49,762	9,663	60,464	161,180

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Prior to 1990, roe sales may include small amounts of coho salmon roe. Since 1990, efforts were made to separate coho salmon roe from the fall chum salmon roe sold. Does not include department test fish sales.

b All sales are fish in the round. Does not include department test fish sales. Estimated test fish sales in 1981, 1982 and 1983 was not separated by summer or chum salmon. All chum salmon sold were assumed to be summer chum salmon in those years.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

d In 1974, District 4 was subdivided to include Districts 5 and 6.

e Does not include 884 female fall chum salmon sold in Subdistrict 6-C with roe extracted and roe sold separately. Females are accounted for in the roe expansion to estimate the number of females to produce the roe sold.

Appendix E.4. Estimated commercial coho salmon sales by district, Yukon Area, 1961-1992.

	Lower Yukon Area b				Upper Yukon Area a											
					District 4			District 5			District 6			Subotal			
Year	District 1	District 2	District 3	Subtotal	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Number	Roe	Estimated Harvest c	Total Yukon Area Estimated Harvest c
1961	2,855	0	0	2,855	0	-	0	-	-	-	-	-	-	0	-	0	2,855
1962	22,926	0	0	22,926	0	-	0	-	-	-	-	-	-	0	-	0	22,926
1963	5,572	0	0	5,572	0	-	0	-	-	-	-	-	-	0	-	0	5,572
1964	2,446	0	0	2,446	0	-	0	-	-	-	-	-	-	0	-	0	2,446
1965	350	0	0	350	0	-	0	-	-	-	-	-	-	0	-	0	350
1966	19,254	0	0	19,254	0	-	0	-	-	-	-	-	-	0	-	0	19,254
1967	9,925	0	1,122	11,047	0	-	0	-	-	-	-	-	-	0	-	0	11,047
1968	13,153	0	150	13,303	0	-	0	-	-	-	-	-	-	0	-	0	13,303
1969	13,989	0	1,009	14,998	0	-	0	-	-	-	-	-	-	0	-	0	14,998
1970	12,632	0	0	12,632	0	-	0	-	-	-	-	-	-	0	-	0	12,632
1971	12,165	0	0	12,165	0	-	0	-	-	-	-	-	-	0	-	0	12,165
1972	21,705	506	0	22,211	0	-	0	-	-	-	-	-	-	0	-	0	22,211
1973	34,860	1,781	0	36,641	0	-	0	-	-	-	-	-	-	0	-	0	36,641
1974 d	13,713	176	0	13,889	0	-	0	1,409	-	1,409	1,479	-	1,479	2,888	-	2,888	16,777
1975	2,288	200	0	2,488	0	-	0	5	-	5	53	-	53	58	-	58	2,546
1976	4,064	17	0	4,081	0	-	0	0	-	0	1,103	-	1,103	1,103	-	1,103	5,184
1977	31,720	5,319	538	37,577	0	-	0	2	-	2	1,284	-	1,284	1,286	-	1,286	38,863
1978	16,460	5,835	758	23,053	32	-	32	1	-	1	3,066	-	3,066	3,099	-	3,099	26,152
1979	11,369	2,850	0	14,219	155	-	155	0	-	0	2,791	-	2,791	2,946	-	2,946	17,165
1980	4,829	2,660	0	7,489	30	-	30	0	-	0	1,226	-	1,226	1,256	-	1,256	8,745
1981	13,100	7,848	419	21,367	0	-	0	0	-	0	2,284	-	2,284	2,284	-	2,284	23,651
1982	14,034	14,179	87	29,100	15	-	15	0	-	0	7,780	-	7,780	7,795	-	7,795	36,895
1983	4,432	2,557	0	6,989	0	-	0	0	-	0	6,168	-	6,168	6,168	-	6,168	13,157
1984	29,358	43,064	621	73,043	1,095	-	1,095	0	-	0	7,688	-	7,688	8,783	-	8,783	81,826
1985	27,525	17,125	171	44,821	938	-	938	0	-	0	11,762	-	11,762	12,700	-	12,700	57,521
1986	24,731	21,197	793	46,721	0	-	0	0	-	0	441	-	441	441	-	441	47,162
1987	0	0	0	0	0	-	0	0	-	0	0	-	0	0	-	0	0
1988	36,028	34,758	1,419	72,205	2	-	2	8	-	8	13,972	-	13,972	13,982	-	13,982	86,187
1989	22,987	38,402	3,988	65,377	3	-	3	84	-	84	16,084	-	16,084	16,171	-	16,171	81,548
1990	12,160	16,405	918	29,483	0	0	0	0	0	0	11,549 e	4,042	14,804	11,549 e	4,042	14,804	44,287
1991	54,095	40,898	1,905	96,898	14	0	14	0	0	0	6,268	4,299	9,774	6,282	4,299	9,788	106,686
1992	0	0	0	0	0	0	0	0	0	0	6,556	1,680	7,979	6,556	1,680	7,979	7,979
Previous Five Year Average 1987-1991	25,054	26,093	1,646	52,793	4	-	4	18	-	18	9,575	-	10,927	9,597	-	10,949	63,742

a Harvest reported in numbers of fish sold in the round and pounds of salmon roe sold. Since 1990, efforts were made to separate the coho salmon roe from the fall chum salmon roe sold. Does not include department test fish sales.

b All sales are fish in the round. Does not include department test fish sales. Estimated test fish sales of 29, 281, and 163 coho salmon in District 1 for the years 1981, 1982, and 1983 respectively.

c The estimated harvest is the fish sold in the round plus the estimated number of females to produce the roe sold.

d In 1974, District 4 was subdivided to include District 5 and 6.

e Does not include 438 female coho salmon sold in Subdistrict 6-C with roe extracted and roe sold separately. Females are accounted for in the roe expansion to estimate the number of females to produce the roe sold.

Appendix E.5. Estimated exvessel value estimates of the salmon fishery, Yukon Area, 1961-1992. a

Year	Chinook		Summer Chum		Fall Chum		Combined Chum		Coho		Total		Combined Total Exvessel Value
	Fish	Roe b	Fish	Roe b	Fish	Roe b	Fish	Roe b	Fish	Roe b	Fish	Roe b	
1961	420,900	-	c	0	c	0	14,700	0	1,400	-	437,000	0	437,000
1962	330,300	-	c	0	c	0	20,100	0	11,500	-	361,900	0	361,900
1963	409,500	-	c	0	c	0	0	0	2,800	-	412,300	0	412,300
1964	351,000	-	c	0	c	0	2,200	0	1,200	-	354,400	0	354,400
1965	531,400	-	c	0	c	0	10,700	0	200	-	542,300	0	542,300
1966	419,900	-	c	0	c	0	25,000	0	9,600	-	454,500	0	454,500
1967	583,700	-	c	0	c	0	17,200	0	5,500	-	606,400	0	606,400
1968	494,300	-	c	0	c	0	34,000	0	6,700	-	535,000	0	535,000
1969	415,000	-	c	0	c	0	96,000	0	8,200	-	519,200	0	519,200
1970	401,300	-	c	0	c	0	211,500	0	10,300	-	623,100	0	623,100
1971	590,100	-	c	0	c	0	182,900	0	10,000	-	783,000	0	783,000
1972	547,800	-	c	0	c	0	215,800	0	20,400	-	784,000	0	784,000
1973	561,400	-	c	0	c	0	609,100	0	46,500	-	1,217,000	0	1,217,000
1974	881,300	-	c	0	c	0	1,011,300	0	28,400	-	1,921,000	0	1,921,000
1975	589,000	-	c	0	c	0	1,201,400	0	3,500	-	1,793,900	0	1,793,900
1976	983,500	-	c	0	c	0	1,158,900	0	8,600	-	2,151,000	0	2,151,000
1977	1,989,799	-	1,313,761	0	820,741	0	2,134,502	0	143,165	-	4,267,466	0	4,267,466
1978	2,115,146	-	2,727,172	c	794,945	c	3,522,117	c	102,928	-	5,740,191	c	5,740,191
1979	2,887,663	-	2,687,488	c	1,506,299	c	4,193,787	c	90,065	-	7,171,515	c	7,171,515
1980	3,522,787	-	1,654,987	d	592,250	d	2,247,237	d	19,748	-	5,789,772	d	5,789,772
1981	4,627,049	-	3,461,054	d	1,860,549	d	5,301,603	d	91,953	-	10,020,605	d	10,020,605
1982	3,930,806	-	1,690,572	d	899,750	d	2,590,322	d	154,614	-	6,675,742	d	6,675,742
1983	4,199,146	-	2,016,153	d	719,961	d	2,736,114	d	28,969	-	6,964,229	d	6,964,229
1984	3,613,277	-	1,309,698	d	477,776	d	1,787,474	d	268,873	-	5,669,624	d	5,669,624
1985	4,377,076	-	1,626,501	d	812,741	d	2,439,242	d	203,051	-	7,019,369	d	7,019,369
1986	3,238,441	-	2,380,546	d	429,630	d	2,810,176	d	212,498	-	6,261,115	d	6,261,115
1987	5,565,129	-	1,637,229	d	0	0	1,637,229	d	0	-	7,202,358	d	7,202,358
1988	5,606,084	-	6,215,091	d	790,000	d	7,005,091	d	768,516	-	13,379,691	d	13,379,691
1989	5,289,878	-	3,594,817	d	937,396	d	4,532,213	d	357,259	-	10,179,350	d	10,179,350
1990	4,926,154	d	1,004,102	d	413,130	d	1,417,312	d	174,328	d	5,970,896	546,898	6,517,794
1991	7,264,190	11,109	1,412,377	d	596,131	d	1,346,917	661,591	311,011	10,748	8,922,118	683,448	9,605,566
1992	10,117,092	8,909	620,168	512,012	41,534	12,627	661,702	524,639	15,867	3,662	10,794,661	537,210	11,331,871
Previous Five Year Average													
1987 - 1991	5,730,287	-	2,772,739	-	547,331	-	3,187,752	-	322,223	-	9,130,883	-	9,376,952

a Value is based on the price paid at the time of sale as indicated on fish tickets. These values do not include any retroactive payments that may occour. Values do not include upper Yukon Area department test fish sales. Values do include lower Yukon Area department test fish sales prior to 1992. Values prior to 1977 are rounded.

b Since 1990, efforts were made to seperate chinook and coho salmon roe from chum salmon roe sold.

c Information not avaiable.

d Value of the roe production is included with the value of the fish sold in the round.

Appendix E.6. Estmated average prices paid per pound to fishermen, Yukon Area, 1964–1992.

	Lower Yukon Area				Upper Yukon Area								
Year	Chinook	Summer Chum	Fall Chum	Coho	Chinook	Chinook Roe	Summer Chum	Summer Chum Roe	Fall Chum	Fall Chum Roe	Coho	Coho Roe	Salmon Roe
1964	0.17		0.03										
1965	0.20												
1966	0.20												
1967	0.19	0.05	0.05	0.07									
1968	0.18	0.06	0.06										
1969	0.19	0.08	0.08	0.08									
1970	0.22	0.09	0.09	0.12									
1971	0.24	0.10	0.10	0.12									
1972	0.24	0.11	0.11	0.13									
1973	0.30	0.16	0.16	0.18									
1974	0.38	0.21	0.21	0.25	0.50		0.15		0.13		0.15		0.75
1975	0.42	0.20	0.20	0.21	0.92		0.17		0.14		0.17		1.16
1976	0.51	0.24	0.24	0.27	0.74		0.19		0.16		0.19		1.33
1977	0.85	0.40	0.45	0.50	1.37		0.27		0.22		0.27		2.66
1978	0.90	0.45	0.47	0.60	0.87		0.24		0.25		0.24		a
1979	1.09	0.52	0.68	0.80	1.00		0.25		0.29		0.25		3.00
1980	1.04	0.20	0.28	0.36	0.85		0.23		0.27		0.29		2.50
1981	1.20	0.40	0.55	0.60	1.00		0.20		0.35		0.35		3.00
1982	1.41	0.40	0.55	0.69	1.02		0.18		0.28		0.37		2.75
1983	1.40	0.34	0.34	0.35	1.08		0.16		0.19		0.31		1.66
1984	1.50	0.26	0.32	0.50	0.95		0.23		0.26		0.24		1.78
1985	1.50	0.35	0.47	0.53	0.86		0.23		0.25		0.33		1.94
1986	1.63	0.38	0.49	0.71	0.89		0.22		0.14		0.21		2.08
1987	1.98	0.49			0.79		0.19						2.22
1988	2.97	0.66	1.01	1.38	1.04		0.23		0.32		0.37		4.33
1989	2.77	0.34	0.50	0.66	0.84		0.24		0.28		0.35		4.41
1990	2.84	0.24	0.45	0.66	0.72		0.11		0.29		0.34		4.38
1991	3.70	0.36	0.34	0.44	0.70	2.92	0.18	4.21	0.23	3.56	0.30	2.50	
1992	4.12	0.27			0.91	2.82	0.30	4.53	0.39	4.50	0.39	2.18	

a Data unavailable.

Appendix E.7. Commercial Fisheries Entry Commission (CFEC) salmon permits issued by gear type, Yukon Area, 1976–1992. a

Year	Lower Yukon Gill Net b		Upper Yukon Set Gill Net		Upper Yukon Fishwheel		Total	
	Permits Issued c	Permits Fished	Permits Issued c	Permits Fished	Permits Issued c	Permits Fished	Permits Issued	Permits Fished
1976	678	d	118	d	169	d	d	d
1977	700	609	69	44	160	130	929	783
1978	699	650	71	47	158	137	928	834
1979	708	661	70	50	165	129	943	840
1980	709	654	71	52	163	128	943	834
1981	711	666	70	45	162	125	943	836
1982	710	664	76	45	166	111	952	820
1983	708	655	73	40	164	115	945	810
1984	708	674	73	39	159	99	940	812
1985	708	664	71	40	159	113	938	817
1986	707	670	71	30	161	101	939	801
1987	706	656	71	33	161	108	938	797
1988	707	677	71	43	160	124	938	844
1989	707	682	70	42	160	127	937	851
1990	708	675	71	35	157	116	936	826
1991	717	680 e	77	36 e	157	110 e	951	826 e
1992	716	679 e	71	32 e	165	111 e	952	822 e

a Information for 1976–1990 obtained from CFEC unless otherwise indicated.
b Set or drift gill net.
c Includes permanent and interim–use permits.
d Information unavailable.
e Data source: ADF&G.

APPENDIX F

TOTAL SALMON UTILIZATION

Appendix F.1. Chinook salmon total utilization by fishery, Yukon River drainage, 1979 - 1992.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
District 1															
Subsistence b	2,879	3,669	2,282	2,311	6,263	4,624	3,071	5,275	10,899	5,526	4,581	6,619	5,925	6,592	6,710
Commercial	75,007	90,382	98,194	73,980	94,451	73,582	89,299	52,333	75,441	56,120	58,359	50,098	56,332 c	74,212 d	59,270
Personal Use	-	-	-	-	-	-	-	-	0	67	286	450	-	-	-
Test Fish Sales e	-	-	1,312	470	1,006	1,089	712	702	1,202	989	794	1,063	485	930	907
Subtotal	77,886	94,051	101,788	76,761	101,720	79,295	93,082	58,310	87,542	62,702	64,020	58,230	62,742	81,734	67,047
District 2															
Subsistence	4,268	3,674	3,580	2,109	9,065	7,172	3,468	6,483	9,866	3,823	7,147	9,546	7,617	7,074	7,600
Commercial	41,498	50,004	45,781	39,132	43,229	36,697	48,365	41,849	47,458	35,120	33,166	33,061	39,260 f	38,139 g	37,613
Test Fish Sales	-	-	-	-	-	-	-	-	-	68	59	152	113	0	78
Subtotal	45,766	53,678	49,361	41,241	52,294	43,869	51,833	48,332	57,324	39,011	40,372	42,759	46,990	45,213	45,291
District 3															
Subsistence	3,263	4,783	4,001	3,359	4,910	4,355	3,342	4,252	4,661	4,443	4,746	4,031	2,998	4,773	4,176
Commercial	5,018	5,240	4,023	2,609	4,106	3,039	2,588	901	2,039	1,767	1,645	2,341	2,344	1,819	2,027
Subtotal	8,281	10,023	8,024	5,968	9,016	7,394	5,930	5,153	6,700	6,210	6,391	6,372	5,342	6,592	6,203
Lower Yukon Area															
Subsistence	10,410	12,126	9,863	7,779	20,238	16,151	9,881	16,010	25,426	13,792	16,474	20,196	16,540	18,439	18,486
Commercial	121,523	145,626	147,998	115,721	141,786	113,318	140,252	95,083	124,938	93,007	93,170	85,500	97,936	114,170	98,910
Personal Use	-	-	-	-	-	-	-	-	-	82	323	534	-	-	-
Test Fish Sales e	-	-	1,312	470	1,006	1,089	712	702	1,202	1,057	853	1,215	598	930	985
Subtotal	131,933	157,752	159,173	123,970	163,030	130,558	150,845	111,795	151,566	107,938	110,820	107,445	115,074	133,539	118,569
District 4															
Subsistence h i	7,265	11,088	4,442	5,077	9,754	7,650	7,425	9,583	7,961	9,619	9,106	11,184	11,289	8,509	9,832
Commercial j	1,989	1,521	1,347	1,087	601	961	664	502	1,524	3,159	2,790	3,536	2,446	1,651	2,691
Commercial Related k	-	-	-	-	-	-	-	-	-	-	-	2	1,136	743	-
Subtotal	9,254	12,609	5,789	6,164	10,355	8,611	8,089	10,085	9,485	12,778	11,896	14,722	14,871	10,903	12,750
District 5															
Subsistence i	11,997	17,684	13,300	12,859	16,780	14,989	15,090	15,988	17,588	16,000	17,837	14,589	16,429	17,691	16,489
Commercial j	3,389	4,891	6,374	5,385	3,606	3,669	3,418	2,733	3,758 l	3,436	3,286	3,353	3,810	3,852	2,941
Commercial Related k	-	-	-	-	-	-	-	-	-	-	-	12	16	3	-
Personal Use	-	-	-	-	-	-	-	-	1,706	1,435	1,877	1,693	-	-	-
Subtotal	15,386	22,575	19,674	18,244	20,386	18,658	18,508	18,721	23,052	20,871	23,000	19,647	20,255	21,546	21,365
District 6															
Subsistence i	1,333	1,826	2,085	2,443	2,706	3,599	7,375	3,701	4,096	4,566	1,111	2,618	2,515	2,438	2,981
Commercial j	772	1,947	987	981	911	867	1,142	950	3,338 m	762	1,741	1,757	686	572	1,381
Commercial Related k	-	-	-	-	-	-	-	-	-	-	-	399	386	180	-
Personal Use	-	-	-	-	-	-	-	-	0	623	453	451	0	0	305
Test Fish Sales	-	-	-	-	-	-	-	-	-	24	440	833	91	32	237
Sport Fish n	554	956	769	1,006	1,048	351	1,368	796	502	944	1,053	544	773	k	763
Subtotal	2,659	4,729	3,841	4,430	4,665	4,817	9,885	5,447	7,936	6,919	4,798	6,602	4,451	3,222	6,141

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Appendix F.1. (Page 2 of 2)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1987 – 1991 Average
Upper Yukon Area															
Subsistence i	20,595	30,598	19,827	20,379	29,240	26,238	29,890	29,272	29,645	30,185	28,054	28,391	30,233	28,638	29,302
Commercial j	6,150	8,359	8,708	7,453	5,118	5,497	5,224	4,185	8,620	7,357	7,817	8,646	6,942	6,075	7,876
Commercial Related k	–	–	–	–	–	–	–	–	–	–	–	413	1,538	926	390
Personal Use	–	–	–	–	–	–	–	–	–	2,058	2,330	2,144	0	0	1,306
Test Fish Sales	–	–	–	–	–	–	–	–	–	24	440	833	91	32	278
Sport Fish n	554	956	769	1,006	1,048	351	1,368	796	502	944	1,053	544	773	– o	763
Subtotal	27,299	39,913	29,304	28,838	35,406	32,086	36,482	34,253	38,767	40,568	39,694	40,971	39,577	35,671	39,915
Yukon Area															
Subsistence i	31,005	42,724	29,690	28,158	49,478	42,389	39,771	45,282	55,071	43,977	44,528	48,587	46,773	47,077	47,787
Commercial j	127,673	153,985	156,706	123,174	146,904	118,815	145,476	99,268	133,558	100,364	100,987	94,146	104,878	120,245	106,787
Commercial Related k	–	–	–	–	–	–	–	–	–	–	–	413	1,538	926	390
Personal Use	–	–	–	–	–	–	–	–	–	2,140	2,653	2,678	0	0	1,494
Test Fish Sales e	–	–	1,312	470	1,006	1,089	712	702	1,202	1,081	1,293	2,048	689	962	1,263
Sport Fish	554	956	769	1,006	1,048	351	1,368	796	502	944	1,053	544	773	– o	763
Total	159,232	197,665	188,477	152,808	198,436	162,644	187,327	146,048	190,333	148,506	150,514	148,416	154,651	169,210	158,484
Canadian Harvest p	10,375	22,846	18,109	17,208	18,952	16,795	19,301	20,364	17,614	21,427	17,944	19,230	20,607	19,174	19,364
Yukon River Drainage Total Utilization	169,607	220,511	206,586	170,016	217,388	179,439	206,628	166,412	207,947	169,933	168,458	167,646	175,258	188,384	177,848

a Subsistence harvest information is preliminary.
b Includes Bering Sea coastal villages of Scammon Bay and Hooper Bay in 1987, 1988, 1989 and 1992 when these villages were surveyed.
c Includes an estimated 2,711 chinook salmon sold illegaly.
d Includes an estimated 1,218 chinook salmon sold illegaly.
e Estimated number of chinook salmon test fish sales for the years 1981, 1982 and 1983.
f Includes an estimated 284 chinook salmon sold illegaly.
g Includes an estimated 207 chinook salmon sold illegaly.
h Includes the Innoko River drainage.
i May include carcasses from the commercial related harvest to produce the roe sold.
j Number of fish sold in the round only. All fish sold in the round in the Lower Yukon Area.
k Commercial related refers to the estimated number of females harvested to produce the roe sold.
l Includes an estimated 653 chinook salmon sold illegaly.
m Includes an estimated 2,136 chinook salmon sold illegaly.
n Sport fish harvest for the entire Alaskan drainage. The majority of this harvest is belived to have occoured within the Tanana River drainage.
o Information not avaiable.
p Includes commercial, Indian food fish, sport and domestic harvest combined. The 1992 information is preliminary.

Appendix F.2. Summer chum salmon total utilisation by fishery, Yukon River drainage, 1980 - 1992.

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
District 1														
Subsistence b	15,972	11,310	18,452	24,679	28,459	24,349	38,854	60,428	60,164	55,185	36,999	27,790	49,934	48,113
Commercial	391,252	503,776	248,280	448,748	290,454	245,389	378,892	220,514	645,322	544,223	146,725	140,470 c	177,329 d	339,451
Personal Use	-	-	-	-	-	-	-	0	416	381	256	-	-	-
Test Fish Sales e	-	3,382	1,236	2,416	2,222	2,097	2,235	2,384	2,876	3,408	2,186	1,373	1,918	2,445
Subtotal	407,224	518,468	267,968	475,843	321,135	271,835	419,981	283,326	708,778	603,197	186,166	169,633	229,181	390,220
District 2														
Subsistence	13,681	14,218	18,442	27,396	26,996	19,795	41,496	33,134	28,787	39,703	28,453	20,703	24,731	30,156
Commercial	308,704	351,878	182,344	248,092	236,931	188,099	288,427	174,876	424,461	343,032	131,755	175,149	147,129 f	249,855
Test Fish Sales	-	-	-	-	-	-	-	-	711	930	752	703	0	619
Subtotal	322,385	366,096	200,786	275,488	263,927	207,894	329,923	208,010	453,959	383,665	160,960	196,555	171,860	280,630
District 3														
Subsistence	3,242	4,929	5,840	4,609	7,169	3,687	5,528	4,161	5,830	3,982	3,003	1,865	4,332	3,768
Commercial	44,782	54,471	4,086	14,600	1,087	1,792	442	3,501	13,965	7,578	643	8,912	65	6,920
Subtotal	48,024	59,400	9,926	19,209	8,256	5,479	5,970	7,662	19,795	11,560	3,646	10,777	4,397	10,688
Lower Yukon Area														
Subsistence	32,895	30,457	42,734	56,684	62,624	47,831	85,878	97,723	94,781	98,870	68,455	50,358	78,997	82,037
Commercial	744,738	910,125	434,710	711,440	528,472	435,280	667,761	398,891	1,083,748	894,833	279,123	324,531	324,523	596,225
Personal Use	-	-	-	-	-	-	-	-	416	381	256	-	-	-
Test Fish Sales e	-	3,382	1,236	2,416	2,222	2,097	2,235	2,384	3,587	4,338	2,938	2,076	1,918	3,065
Subtotal	777,633	943,964	478,680	770,540	593,318	485,208	755,874	498,998	1,182,532	998,422	350,772	376,965	405,438	681,538
District 4														
Subsistence g h	119,790	50,953	57,967	46,713	49,230	59,839	59,730	56,926	95,384	49,777	33,052	38,949	41,079	54,818
Commercial i	147,560	59,718	3,647	6,672	1,009	12,007	300	29,991	24,051	18,554	12,364	6,381	2,659	18,268
Commercial Related j	135,824	270,727	254,072	248,716	277,061	415,476	465,235	179,809	466,023	491,690	198,697	294,743	208,737	326,192
Subtotal	403,174	381,398	315,686	302,101	327,300	487,322	525,265	266,726	585,458	560,021	244,113	340,073	252,475	399,278
District 5														
Subsistence k	8,594	27,308	9,791	23,943	31,535	26,996	21,889	20,588	31,331	12,360	9,817	24,164	12,612	19,652
Commercial i	456	1,236	213	42	645	700	690	362	722	154	11	4	102	251
Commercial Related j	0	49	21	1,856	47	0	0	44	363	373	660	31	328	294
Personal Use	-	-	-	-	-	-	-	4,262	567	295	641	-	-	-
Subtotal	9,050	28,593	10,025	25,841	32,227	27,696	22,579	25,256	32,983	13,182	11,129	24,199	13,042	21,350
District 6														
Subsistence k	6,426	10,947	8,459	23,714	23,441	24,618	17,049	24,325	4,556	2,281	4,285	5,059	9,504	8,101
Commercial i	35,855	32,477	21,597	24,309	56,249	66,913	50,483	10,610	40,129	42,115	11,127	18,197	5,029	24,436
Commercial Related j	3,282	1,987	1,517	18	335	1,540	2,146	450	1,646	4,871	3,706	5,695	2,199	3,274
Personal Use	-	-	-	-	-	-	-	0	1,242	1,215	930	0	0	-
Test Fish Sales	-	-	-	-	-	-	-	-	0	6,267	5,325	1,858	49	-
Sport Fish l	483	612	780	998	585	1,267	895	846	1,037	2,103	472	1,037	m	1,099
Subtotal	46,046	46,023	32,353	49,039	80,610	94,338	70,573	36,231	48,610	58,852	25,845	31,846	16,781	40,277

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Appendix F.2. (Page 2 of 2)

	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
Upper Yukon Area														
Subsistence k	134,810	89,208	76,217	94,370	104,206	111,453	98,668	101,839	131,271	64,418	47,154	68,172	63,195	82,571
Commercial i	183,871	93,431	25,457	31,023	57,903	79,620	51,473	40,963	64,902	60,823	23,502	24,582	7,790	42,954
Commercial Related j	139,106	272,763	255,610	250,590	277,443	417,016	467,381	180,303	468,032	496,934	203,063	300,469	211,264	329,760
Personal Use	-	-	-	-	-	-	-	-	1,809	1,510	1,571	0	0	-
Test Fish Sales	-	-	-	-	-	-	-	-	0	6,267	5,325	1,858	49	-
Sport Fish l	483	612	780	998	585	1,267	895	846	1,037	2,103	472	1,037	m	1,099
Subtotal	458,270	456,014	358,064	376,981	440,137	609,356	618,417	323,951	667,051	632,055	281,087	396,118	282,298	460,052
Yukon Area														
Subsistence	167,705	119,665	118,951	151,054	166,830	159,284	184,546	199,562	226,052	163,288	115,609	118,530	142,192	164,608
Commercial i	928,609	1,003,556	460,167	742,463	586,375	514,900	719,234	439,854	1,148,650	955,656	302,625	349,113	332,313	639,180
Commercial Related j	139,106	272,763	255,610	250,590	277,443	417,016	467,381	180,303	468,032	496,934	203,063	300,469	211,264	329,760
Personal Use	-	-	-	-	-	-	-	-	2,225	1,891	1,827	0	0	1,189
Test Fish Sales	-	3,382	1,236	2,416	2,222	2,097	2,235	2,384	3,587	10,605	8,263	3,934	1,967	5,755
Sport Fish	483	612	780	998	585	1,267	895	846	1,037	2,103	472	1,037	m	1,099
Total	1,235,903	1,399,978	836,744	1,147,521	1,033,455	1,094,564	1,374,291	822,949	1,849,583	1,630,477	631,859	773,083	687,736	1,141,590
Canadian Harvest n	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon River Drainage Total Utilization	1,235,903	1,399,978	836,744	1,147,521	1,033,455	1,094,564	1,374,291	822,949	1,849,583	1,630,477	631,859	773,083	687,736	1,141,590

a Subsistence harvest information is preliminary.
b Includes Bering Sea coastal villages of Scammon Bay and Hooper Bay in 1987, 1988, 1989 and 1992 when these villages were surveyed.
d Includes 1,023 summer chum salmon sold illegaly.
d Includes 31 summer chum salmon sold illegaly.
e Estimated number of fall chum and summer chum salmon combined test fish sales for the years 1981, 1982 and 1993.
f Includes 91 summer chum salmon sold illegaly.
g Includes the Innoko River drainage.
h District 4 subsistence harvest does not include commecial related harvest. See Appendix A.19, footnote c in the 1991 AMR for information on years prior to 1988.
i Number of fish sold in the round only. All fish sold in the round in the lower Yukon Area.
j Commercial related refers to the estimated number of females harvested to produce the roe sold. Except in Subdistrict 4-A, where the commercial related is the estimated number of males and females harvested to produce the roe sold.
k May include carcasses from the commercial related harvest to produce the roe sold.
l Sport fish harvest for the entire Alaskan drainage. The majority of this harvest is belived to have occoured within the Tanana River drainage. Sport Fish Division does not seperate the chum salmon harvest into summer chum or fall chum salmon. The majority of the chum salmon harvest is belived to be summer chum salmon and reported as summer chum salmon here.
m Information not avaiable.
n Includes commercial, Indian food fish, sport and domestic harvest combined. The 1992 information is preliminary.

Appendix F.3. Fall chum salmon total utilization by fishery, Yukon River drainage, 1979 - 1992.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
District 1															
Subsistance b	15,788	7,433	15,540	10,016	8,238	8,885	13,275	9,000	18,689	7,737	5,070	5,335	3,935	5,422	8,153
Commercial	109,406	106,829	167,834	97,484	124,371	78,457	129,506	58,598	0	44,890	74,235	25,269	59,724	0	40,824
Personal Use	-	-	-	-	-	-	-	-	0	5	18	60	-	-	-
Test Fish Sales	-	-	c	c	c	294	442	754	0	639	3,641	2,068	2,415	0	1,753
Subtotal	125,194	114,262	183,374	107,500	132,609	87,636	143,223	68,352	18,689	53,271	82,964	32,732	66,074	5,422	50,746
District 2															
Subsistence	14,662	12,435	11,770	9,511	10,341	11,394	11,544	13,483	13,454	8,600	10,015	6,187	5,628	7,382	8,777
Commercial	94,042	83,881	154,883	96,581	85,645	70,803	40,490	51,307	0	31,845	97,558	37,077	102,628	0	53,822
Test Fish Sales	-	-	-	-	-	-	-	-	-	16	348	96	96	0	-
Subtotal	108,704	96,316	166,653	106,092	95,986	82,197	52,034	64,790	13,454	40,461	107,921	43,360	108,352	7,382	62,710
District 3															
Subsistence	2,443	2,320	2,893	1,659	2,863	2,074	2,290	1,785	2,853	1,747	1,019	2,056	615	1,493	1,658
Commercial	25,955	13,519	19,043	5,815	10,018	6,429	5,164	2,793	0	2,090	15,332	3,715	9,213	0	6,070
Subtotal	28,398	15,839	21,936	7,474	12,881	8,503	7,454	4,578	2,853	3,837	16,351	5,771	9,828	1,493	7,728
Lower Yukon Area															
Subsistence	32,893	22,188	30,203	21,186	21,442	22,353	27,109	24,268	34,996	18,084	16,104	13,578	10,178	14,297	18,588
Commercial	229,403	204,229	341,760	199,880	220,034	155,689	175,160	112,698	0	78,825	187,125	66,061	171,565	0	100,715
Personal Use	-	-	-	-	-	-	-	-	-	5	18	60	-	-	-
Test Fish Sales	-	-	c	c	c	294	442	754	0	655	3,989	2,164	2,511	0	1,864
Subtotal	262,296	226,417	371,963	221,066	241,476	178,336	202,711	137,720	34,996	97,569	207,236	81,863	184,254	14,297	121,184
District 4															
Subsistence d e	37,896	23,675	20,123	20,319	34,209	31,152	25,275	26,496	41,901	18,379	24,544	19,241	20,875	22,097	24,988
Commercial f	48,899	27,978	12,082	3,894	4,482	7,625	24,452	2,045	0	15,662	11,776	4,989	3,737	0	7,233
Commercial Related g	3,199	4,367	1,311	167	1,963	2,215	2,525	0	0	1,421	3,407	3,177	2,354	0	2,072
Subtotal	89,994	56,000	33,516	24,380	40,654	40,992	52,252	28,541	41,901	35,462	39,727	27,407	26,966	22,097	34,293
District 5															
Subsistence e	110,792	76,466	111,567	71,828	105,103	98,433	117,125	88,117	157,085 h	76,001	103,481	90,513	74,102	43,417	83,530
Commercial f	47,459	41,771	86,620	13,593	43,993	24,060	25,338	22,053	0	16,989	18,215	7,778	27,355	0	14,067
Commercial Related g	8,097	605	6,955	42	0	57	0	395	0	0	3,989	1,198	4,759	0	1,989
Personal Use	-	-	-	-	-	-	-	-	15,750	1,762	3,294	3,723	-	-	-
Subtotal	166,348	118,842	205,142	85,463	149,096	122,550	142,463	110,565	172,835	94,752	128,979	103,212	106,216	43,417	121,199
District 6															
Subsistence e	51,766	50,328	26,632	19,564	32,174	22,726	36,963	25,153	127,903 i	28,067	43,811	44,568	40,469	25,713	47,470
Commercial f	34,185	19,452	25,989	6,820	34,089	20,564	42,352	1,892	0	21,844	49,090	43,182 j	28,195	15,721	23,719
Commercial Related g	7,170	68	3,019	596	3,101	56	0	182	0	1,806	7,353	7,793	16,253	3,301	6,641
Personal Use	-	-	-	-	-	-	-	-	3,316	2,114	1,770	1,393	0	0	-
Test Fish Sales	-	-	-	-	-	-	-	-	-	27,008	16,984	7,060	1,385	1,407	-
Sport Fish k	m	m	m	m	m	m	m	m	m	m	m	m	m	m	-
Subtotal	93,121	69,848	55,640	26,980	69,364	43,346	79,315	27,227	131,219	80,839	119,008	103,996	86,302	46,142	104,273

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Appendix F.3. (Page 2 of 2)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
Upper Yukon Area															
Subsistence e	200,454	150,469	158,322	111,711	171,486	152,311	179,363	139,766	326,889	122,447	171,836	154,322	135,446	91,227	182,188
Commercial f	130,543	89,201	124,691	24,307	82,564	52,249	92,142	25,990	0	54,495	79,081	55,949	59,287	15,721	49,762
Commercial Related g	18,466	5,020	11,285	805	5,064	2,328	2,525	577	0	3,227	14,749	12,168	23,366	3,301	10,702
Personal Use	-	-	-	-	-	-	-	-	-	3,876	5,064	5,116	0	0	2,811
Test Fish Sales	-	-	-	-	-	-	-	-	-	27,008	16,984	7,060	1,385	1,407	10,487
Sport Fish k	m	m	m	m	m	m	m	m	m	m	m	m	m	m	-
Subtotal	349,463	244,690	294,298	136,823	259,114	206,888	274,030	166,333	326,889	211,053	287,714	234,615	219,484	111,656	255,951
Yukon Area															
Subsistence e	233,347	172,657	188,525	132,897	192,928	174,664	206,472	164,034	361,885	140,531	187,940	167,900	145,624	105,524	200,776
Commercial f	359,946	293,430	466,451	224,187	302,598	207,938	267,302	138,688	0	133,320	266,206	122,010	230,852	15,721	150,478
Commercial Related g	18,466	5,020	11,285	805	5,064	2,328	2,525	577	0	3,227	14,749	12,168	23,366	3,301	10,702
Personal Use	-	-	-	-	-	-	-	-	-	3,881	5,082	5,176	0	0	-
Test Fish Sales	-	-	c	c	c	294	442	754	0	27,663	20,973	9,224	3,896	1,407	12,351
Sport Fish	m	m	m	m	m	m	m	m	m	m	m	m	m	m	-
Total	611,759	471,107	666,261	357,889	500,590	385,224	476,741	304,053	361,885	308,622	494,950	316,478	403,738	125,953	377,135
Canadian Harvest n	22,084	22,218	22,281	16,091	29,490	29,267	41,265	14,493	44,480	33,565	23,020	33,622	35,418	23,182	34,021
Yukon River Drainage Total Utilization	633,843	493,325	688,542	373,980	530,080	414,491	518,006	318,546	406,365	342,187	517,970	350,100	439,156	149,135	411,156

a Subsistence harvest information is preliminary.
b Includes the Bering Sea villages of Scammon Bay and Hooper Bay in 1987, 1988, 1989 and 1992 when these villages were surveyed.
c In 1981, 1982, and 1983, fall chum salmon test fish sales was not seperated by summer chum or fall chum salmon. All chum salmon sold are assumed to be summer cum salmon (See Apendix F.2.).
d Includes the Innoko River drainage.
e May include carcasses from the commercial related harvest to produce the roe sold (Commercial Related).
f Number of fish sold in the round only. All fish sold in the round in the Lower Yukon Area.
g Commercial related refers to the estimated number of females harvested to produce the roe sold.
h Includes an estimated 95,768 fall chum salmon sold illegaly (See Table 18, 1988 AMR).
i Includes an estimated 119,168 fall chum salmon sold illegaly (See Table 18, 1988 AMR).
j Does not include 884 female fall chum salmon sold in Subdistrict 6-C with roe extracted and roe sold seperately. Females are accounted for in the roe expansion to estimate the number of females to produce the roe sold (Commercial Related).
k Sport fish harvest for the entire Alaskan drainage. The majority of this harvest is belived to have occoured within the Tanana River drainage. Sport Fish Division does not seperate the chum salmon harvest into summer chum or fall chum salmon. The majority of the chum salmon harvest is belived to be summer chum salmon and reported as summer chum salmon in Appendix F.2.
m Information not avaiable.
n Includes commercial, Indian food fish, sport and domestic harvest combined. The 1992 information is preliminary.

Appendix F.4. Coho salmon total utilization by fishery, Yukon River drainage, 1979 - 1992.

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
District 1															
Subsistence b	3,184	1,808	3,769	11,192	3,590	6,095	3,246	2,725	6,529	6,238	5,290	3,301	1,808	5,485	4,633
Commercial	11,369	4,829	13,100	14,834	4,432	29,358	27,525	24,731	0	36,028	22,987	12,160	54,095	0	25,054
Personal Use	-	-	-	-	-	-	-	-	0	0	59	8	-	-	-
Test Fish Sales c	-	-	29	281	163	114	151	93	0	407	1,685	1,194	2,094	0	1,076
Subtotal	14,553	6,637	16,898	26,307	8,185	35,567	30,922	27,549	6,529	42,673	30,021	16,663	57,997	5,485	30,777
District 2															
Subsistence	1,132	4,801	3,736	10,229	6,072	7,066	4,834	9,140	6,894	7,104	5,039	6,344	3,297	6,587	5,736
Commercial	2,850	2,660	7,848	14,179	2,557	43,064	17,125	21,197	0	34,758	38,402	16,405	40,898	0	26,093
Test Fish Sales	-	-	-	-	-	-	-	-	-	18	120	30	86	0	-
Subtotal	3,982	7,461	11,584	24,408	8,629	50,130	21,959	30,337	6,894	41,880	43,561	22,779	44,281	6,587	31,879
District 3															
Subsistence	12	91	490	675	917	656	376	781	682	1,539	537	1,026	1,340	1,253	1,025
Commercial	0	0	419	87	0	621	171	793	0	1,419	3,988	918	1,905	0	1,646
Subtotal	12	91	909	762	917	1,277	547	1,574	682	2,958	4,525	1,944	3,245	1,253	2,671
Lower Yukon Area															
Subsistence	4,328	6,700	7,995	22,096	10,579	13,817	8,456	12,646	14,105	14,881	10,866	10,671	6,445	13,325	11,394
Commercial	14,219	7,489	21,367	29,100	6,989	73,043	44,821	46,721	0	72,205	65,377	29,483	96,898	0	52,793
Personal Use	-	-	-	-	-	-	-	-	-	0	59	8	-	-	-
Test Fish Sales c	-	-	29	281	163	114	151	93	0	425	1,805	1,224	2,180	0	1,127
Subtotal	18,547	14,189	29,391	51,477	17,731	86,974	53,428	59,460	14,105	87,511	78,107	41,386	105,523	13,325	65,326
District 4															
Subsistence d	259	7,734	2,259	2,952	3,946	2,867	3,949	2,631	3,551	4,842	4,030	3,614	4,451	8,725	4,098
Commercial e	155	30	0	15	0	1,095	938	0	0	2	3	0	14	0	4
Commercial Related f	-	-	-	-	-	-	-	-	-	-	-	0	0	0	-
Subtotal	414	7,764	2,259	2,967	3,946	3,962	4,887	2,631	3,551	4,844	4,033	3,614	4,465	8,725	4,101
District 5															
Subsistence	595	561	1,713	3,428	2,448	17,467	8,098	5,870	11,900 g	19,810	7,187	11,562	4,931	12,376	9,232
Commercial e	0	0	0	0	0	0	0	0	0	8	84	0	0	0	18
Commercial Related f	-	-	-	-	-	-	-	-	-	-	-	0	0	0	-
Personal Use	-	-	-	-	-	-	-	-	58	103	82	18	-	-	-
Subtotal	595	561	1,713	3,428	2,448	17,467	8,098	5,870	11,958	19,921	7,353	11,580	4,931	12,376	11,149
District 6															
Subsistence	4,612	5,163	9,261	7,418	6,932	14,785	11,761	13,323	55,471 h	22,361	13,745	17,613	21,561	17,554	21,792
Commercial e	2,791	1,226	2,284	7,780	6,168	7,688	11,762	441	0	13,972	16,084	11,549 k	6,268	6,556	7,979
Commercial Related f	-	-	-	-	-	-	-	-	-	-	-	3,255	3,506	1,423	-
Personal Use	-	-	-	-	-	-	-	-	2,465	1,147	731	1,155	0	0	-
Test Fish Sales	-	-	-	-	-	-	-	-	-	13,295	2,140	1,426	791	1,629	-
Sport Fish i	50	67	45	97	199	831	808	1,535	1,292	2,420	1,796	1,947	2,775	j	2,046
Subtotal	7,453	6,456	11,590	15,295	13,299	23,304	24,331	15,299	59,228	53,195	34,496	36,945	34,901	27,162	43,753

- Continued -

Appendix F.4. (Page 2 of 2)

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992 a	1987 - 1991 Average
Upper Yukon Area															
Subsistence	5,466	13,458	13,233	13,798	13,326	35,119	23,808	21,824	70,922	47,013	24,962	32,789	30,943	38,655	41,326
Commercial c	2,946	1,256	2,284	7,795	6,168	8,783	12,700	441	0	13,982	16,171	11,549	6,282	6,556	9,597
Commercial Related f	-	-	-	-	-	-	-	-	-	-	-	3,255	3,506	1,423	-
Personal Use	-	-	-	-	-	-	-	-	-	1,250	813	1,173	0	0	-
Test Fish Sales	-	-	-	-	-	-	-	-	-	13,295	2,140	1,426	791	1,629	-
Sport Fish i	50	67	45	97	199	831	808	1,535	1,292	2,420	1,796	1,947	2,775	j	2,046
Subtotal	8,462	14,781	15,562	21,690	19,693	44,733	37,316	23,800	72,214	77,960	45,882	52,139	44,297	48,263	58,498
Yukon Area															
Subsistence	9,794	20,158	21,228	35,894	23,905	48,936	32,264	34,470	85,027	61,894	35,828	43,460	37,388	51,980	52,719
Commercial e	17,165	8,745	23,651	36,895	13,157	81,826	57,521	47,162	0	86,187	81,548	41,032	103,180	6,556	62,389
Commercial Related f	-	-	-	-	-	-	-	-	-	-	-	3,255	3,506	1,423	-
Personal Use	-	-	-	-	-	-	-	-	-	1,250	872	1,181	0	0	-
Test Fish Sales c	-	-	29	281	163	114	151	93	0	13,720	3,945	2,650	2,971	1,629	4,657
Sport Fish	50	67	45	97	199	831	808	1,535	1,292	2,420	1,796	1,947	2,775	j	2,046
Total	27,009	28,970	44,953	73,167	37,424	131,707	90,744	83,260	86,319	165,471	123,989	93,525	149,820	61,588	123,825
Canadian Harvest l	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Yukon River Drainage Total Utilization	27,009	28,970	44,953	73,167	37,424	131,707	90,744	83,260	86,319	165,471	123,989	93,525	149,820	61,588	123,825

a Subsistence harvest information is preliminary.
b Includes the Bering Sea coastal villages of Scammon Bay and Hooper Bay in 1987, 1988, 1989 and 1992 when these villages were surveyed.
c Estimated number of test fish sales for the years 1981, 1982 and 1983.
d Includes the Innoko River drainage.
e Number of fish sold in the round only. All fish sold in the Lower Yukon Area are in the round.
f Commercial related refers to the estimated number of females harvested to produce the roe sold.
g Includes an estimated 11,840 coho salmon sold illegaly (See Table 18, 1988 AMR).
h Includes an estimated 52,335 coho salmon sold illegaly (See Table 18, 1988 AMR).
i Sport fish harvest for the entire Alaskan drainage. The majority of this harvest is belived to have occoured within the Tanana River drainage.
j Information not avaible.
k Does not include 438 female coho salmon sold in Subdistrict 6-C with roe extracted and roe sold seperately. Females are accounted for in the roe expansion to estimate the number of females to produce the roe sold (Commercial Related).
l Includes commercial, Indian food fish, sport and domestic harvests combined. The 1992 information is preliminary.

ESCAPEMENT

APPENDIX G

STATUS OF SALMON STOCKS

12/25/93

Appendix G.1 Chinook salmon escapement counts for selected spawning areas in the Alaskan portion of the Yukon River drainage 1961–1992 [a]

Year	Andreafsky River		Anvik River [b]		Nulato River		Gisasa River	Chena River			Salcha River		
	East Fork	West Fork	River	Index Area	North Fork [c]	South Fork		Population Estimate	River	Index Area [d]	Population Estimate	River	Index Area [e]
1961	1,003	–	1,226	–	376 [f]	167	266 [f]	–	–	–	–	2,878	–
1962	575 [f]	762 [f]	–	–	–	–	–	–	81 [f,g]	–	–	937	–
1963	–	–	–	–	–	–	–	–	137 [f]	–	–	–	–
1964	867	705	–	–	–	–	–	–	–	–	–	450	–
1965	–	344 [f]	650 [f]	–	–	–	–	–	–	–	–	408	–
1966	361	303	638	–	–	–	–	–	–	–	–	800	–
1967	–	276 [f]	336 [f]	–	–	–	–	–	–	–	–	–	–
1968	380	383	310 [f]	–	–	–	–	–	–	–	–	739	–
1969	274 [f]	231 [f]	296 [f]	–	–	–	–	–	–	–	–	461 [f]	–
1970	565	574 [f]	368	–	–	–	–	–	6 [f]	–	–	882 [f]	–
1971	1,904	1,682	–	–	–	–	–	–	193 [f,g]	–	–	158 [f]	–
1972	798	582 [f]	1,198	–	–	–	–	–	138 [f,g]	–	–	1,193	1,034
1973	825	788	613	–	–	–	–	–	21 [f]	–	–	391	352 [h]
1974	–	285	471 [f]	–	55 [f]	23 [f]	161	–	1,016 [g]	959 [g]	–	1,857	1,620
1975	993	301	730	–	123	81	385	–	316 [g]	262 [g]	–	1,055	950 [h]
1976	818	643	1,053	–	471	177	332	–	531	496	–	1,641	1,473
1977	2,008	1,499	1,371	–	286	201	255	–	563	–	–	1,202	1,052
1978	2,487	1,062	1,324	–	496	422	45 [f]	–	1,726	–	–	3,499	3,258
1979	1,180	1,134	1,484	–	1,093	414	484	–	1,159 [f]	–	–	4,789	4,310 [h]
1980	958 [f]	1,500	1,330	1,192	954 [f]	389 [f]	951	–	2,541	–	–	6,757	6,126
1981	2,146 [f]	231 [f]	807 [f]	577 [f]	–	791	–	–	600 [f]	–	–	1,237	1,121
1982	1,274	851	–	–	–	–	421	–	2,073	–	–	2,534	2,346
1983	–	–	853 [f]	376 [f]	526	480	572	–	2,553	2,336	–	1,961	1,803
1984	1,573 [f]	1,993	641 [f]	574 [f]	–	–	–	–	501	494	–	1,031	906
1985	1,617	2,248	1,051	720	1,600	1,180	735	–	2,553	2,262	–	2,035	1,860
1986	1,954	3,158	1,118	918	1,452	1,522	1,346	9,065	2,031	1,935	–	3,366	3,031 [h]
1987	1,608	3,281	1,174	879	1,145	493	731	6,404	1,312	1,209	4,771	1,896	1,671
1988	1,020	1,448	1,805	1,449	1,061	714	797	3,346	1,966	1,760	4,562	2,761	2,553
1989	1,399	1,089	442 [f]	212 [f]	–	–	–	2,666	1,280	1,185	3,294	2,333	2,136
1990	2,503	1,545	2,347	1,595	568 [f]	430 [g]	884 [f]	5,603	1,436	1,402	10,728	3,744	3,429
1991	1,938	2,544	875 [f]	625 [f]	767	1,253	1,690	3,025	1,277 [f]	1,277 [f]	5,608	2,212 [f]	1,925 [f]
1992 [i]	1,030 [f]	2,002 [f]	1,536	931	348	231	910	5,230	825 [f]	799 [f]	8,410	1,484 [f]	1,436 [f]
E.O. [j]	>1500	>1400	>1,300 [k]	>500 [k]	>800	>500	>600	–	–	>1,700	–	–	>2,500

[a] Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Survey rating is fair to good, unless otherwise noted. Latest table revision: November 18, 1992.

[b] From 1961–1970, river count data are from aerial surveys of various segments of the mainstem Anvik River. From 1972–1979, counting tower operated; mainstem aerial survey counts below the tower were added to tower counts. From 1980–present, aerial survey counts for the river are best available minimal estimates for the entire Anvik River drainage. Index area counts are from the mainstem Anvik River between the Yellow River and McDonald Creek.

[c] Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.

[d] Chena River index area for assessing the escapement objective is from Moose Creek Dam to Middle Fork River.

[e] Salcha River index area for assessing the escapement objective is from the TAPS crossing to Caribou Creek.

[f] Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.

[g] Boat survey.

[h] Data unavailable for index area. Calculated from historic (1972–91) average ratio of index area counts to total river counts (0.90:1.0).

[i] Mainstem counts below the confluence of the North and South Forks Nulato River included in the South Fork counts.

[j] Preliminary

[k] Interim escapement objectives. Established March, 1992.

[l] Interim escapement objective for the entire Anvik River drainage is 1,300 salmon. Interim escapement objective for mainstem Anvik River between the Yellow River and McDonald Creek is 500 salmon.

02/26/93

Appendix G.2. Chinook salmon escapement counts for selected spawning areas in the Canadian portion of the Yukon River drainage, 1961–1992.[a]

Year	Tincup Creek	Tatchun River[b]	Little Salmon River	Big Salmon River[c]	Nisutlin River[d]	Wolf River[e]	Whitehorse Fishway[g]	Canada Mainstem Tagging Estimate[h]
1961	–	–	–	–	–	–	1,068	–
1962	–	–	–	–	–	–	1,500	–
1963	–	–	–	–	–	–	483	–
1964	–	–	–	–	–	–	595	–
1965	–	–	–	–	–	–	903	–
1966	–	7 [i]	–	–	–	–	563	–
1967	–	–	–	–	–	–	533	–
1968	–	–	173 [i]	857 [i]	407 [i]	–	414	–
1969	–	–	120	286	105	–	334	–
1970	–	100	–	670	615	71 [i]	625	–
1971	–	130	275	275	650	750	856	–
1972	–	80	126	415	237	13	391	–
1973	100	99	27 [i]	75 [i]	36 [i]	–	224	–
1974	–	192	–	70 [i]	48 [i]	–	273	–
1975	–	175	–	153 [i]	249	40 [i]	313	–
1976	–	52	–	86 [i]	102	–	121	–
1977	–	150	408	316 [i]	77	–	277	–
1978	–	200	330	524	375	–	725	–
1979	–	150	489 [i]	632	713	183 [i]	1,184	–
1980	–	222	286 [i]	1,436	975	377	1,383	–
1981	–	133	670	2,411	1,626	395	1,555	–
1982	–	73	403	758	578	104	473	19,790
1983	100	264	101 [i]	540	701	95	905	28,989
1984	150	153	434	1,044	832	124	1,042	27,616 [k]
1985	210	190	255	801	409	110	506	10,730
1986	228	155	54 [i]	745	459 [i]	109	557	16,415
1987	100	159	468	891	183	35	327	13,260
1988	204	152	368	765	267	66	405	23,116
1989	88	100	862	1,662	695	146	549	25,201
1990	83	643	665	1,806	652	188	1,407	37,699
1991	–	–	326	1,040	–	201 [m]	1,266	20,743
1992 [a]	73	106	494	617	241	110 [m]	758	24,359
E.O.[p]								33,000–43,000[p]

[a] Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Survey rating is fair to good, unless otherwise noted. Latest table revision: November 18, 1992.
[b] All foot surveys except 1978 (boat survey) and 1986 (aerial survey).
[c] For 1968, 1970, and 1971 counts are from mainstem Big Salmon River. For all other years counts are from the mainstem Big Salmon River between Big Salmon Lake and the vicinity of South Creek.
[d] One Hundred Mile Creek to Sidney Creek.
[e] Wolf Lake to Red River.
[g] Includes 50, 90, 292, 506, 243 fin–clipped hatchery–origin salmon in 1988, 1989, 1990, 1991, and 1992 respectively.
[h] Estimated total spawning escapement excluding Porcupine River (estimated border escapement minus the Canadian catch).
[i] Incomplete and/or poor survey conditions resulting in minimal or inaccurate counts.
[k] Estimate derived by dividing the annual 5–area (Whitehorse Fishway, Big Salmon, Nisutlin, Wolf, Tatchun) count by the average proportion of the annual 5–area index count to the estimated spawning escapements from the DFO tagging study for years 1982, 1983, and 1985–1989.
[m] Counts are for Wolf Lake to Fish Lake outlet.
[a] Preliminary
[p] Interim escapement objective. Stabilization escapement objective for years 1990 – 1995 is 18,000 salmon.

Appendix G.3. Summer chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1973–1992 [a]

Year	Andreafsky River: East Fork Aerial	Andreafsky River: East Fork Sonar or Tower	Andreafsky River: West Fork	Anvik River: Tower & Aerial [b]	Anvik River: Sonar	Nulato River: South Fork	Nulato River: North Fork [c]	Gisasa River	Hogatza River (Clear and Caribou Crs)	Chena River	Salcha River
1973	10,149 [d]	–	51,835	86,665 [d]		–				79 [d]	
1974	3,215 [d]	–	33,578	201,277		29,016	29,334	22,022		4,349	3,510
1975	223,485	–	235,954	845,485	–	51,215	87,280	56,904	22,355	1,670	7,573
1976	105,347	–	118,420	406,166	–	9,230 [d]	30,771	21,342	20,744	685	6,474
1977	112,722	–	63,120	262,654	–	11,385	58,275	2,204 [d]	10,734	610	677 [d]
1978	127,050	–	57,321	251,339	–	12,821	41,659	9,280 [d]	5,102	1,609	5,405
1979	66,471	–	43,391	81,830 [d]	280,537	1,506	35,598	10,962	14,221	1,025 [d]	3,060
1980	36,823 [d]	–	114,759	–	492,676	3,702 [d]	11,244 [d]	10,388	19,786	338	4,140
1981	81,555	147,312 [e]	–	–	1,486,182	14,348	–	–	–	3,500	8,500
1982	7,501 [d]	181,352 [e]	7,267 [d]	–	444,581	–	–	334 [d]	4,984 [d]	1,509	3,756
1983	–	110,608 [e]	–	–	362,912	1,263 [d]	19,749	2,356 [d]	28,141	1,097	716 [d]
1984	95,200 [d]	70,125 [e]	236,565	–	891,028	–	–	–	–	1,861	9,810
1985	66,148	–	52,750	–	1,080,243	10,494	19,344	13,232	22,566	1,005	3,178
1986	83,931	167,614 [f]	99,373	–	1,169,602	16,848	47,417	12,114	–	1,509	8,028
1987	6,667 [d]	45,221 [f]	35,535	–	455,876	4,094	7,163	2,123	5,669 [d]	333	3,657
1988	43,056	68,937 [f]	45,432	–	1,125,449	15,132	26,951	9,284	6,890	432	2,889 [d]
1989	21,460 [d]	–	–	–	636,906	–	–	–	–	714 [d]	1,574 [d]
1990	11,519 [d]	–	20,428 [d]	–	403,627	3,196 [d,g]	1,419 [d]	450 [d]	2,177 [d]	100 [d]	450 [d]
1991	31,666	–	46,657	–	847,772	13,150	12,491	7,003	9,947	10 [d]	154 [d]
1992 [n]	11,308 [d]	–	37,808 [d]	–	775,626	5,322	12,358	9,300	2,986	848 [d]	3,222
E.O. [h]	>109,000	–	>116,000	–	>500,000 [i]	–	>53,000 [k]	–	>17,000 [m]		>3,500

[a] Data obtained by aerial survey unless otherwise noted. Only peak counts are listed. Latest table revision November 18, 1992

[b] From 1972–1979, counting tower operated; mainstem aerial survey counts below the tower were added to tower counts

[c] Includes mainstem counts below the confluence of the North and South Forks, unless otherwise noted.

[d] Incomplete survey and/or poor survey timing or conditions resulted in minimal or inaccurate count.

[e] Sonar count.

[f] Tower count.

[g] Mainstem counts below the confluence of the North and South Forks Nulato River included in the South Fork counts

[h] Interim escapement objective.

[i] The Anvik River Escapement Objective was rounded upward to 500,000 from 487,000 in March, 1992.

[k] Interim escapement objective for North Fork Nulato River only.

[m] Consists of Clear and Caribou Creeks interim escapement objectives of 9,000 and 8,000, respectively.

[n] Preliminary.

02/26/93

Appendix G.4. Fall chum salmon escapement counts for selected spawning areas in the Yukon River drainage, 1971–1992.[a]

Year	Toklat River[b]	Delta River[c]	Chandalar River[d]	Sheenjek River[d]	Fishing Branch River[e]	Canada Mainstem Tagging Estimate[f]
1971	–	–	–	–	312,800	–
1972	–	–	–	–	35,125[g]	–
1973	–	–	–	–	15,989[h]	–
1974	43,484	5,915	–	89,966[i]	32,525[h]	–
1975	90,984	3,734[k]	–	173,371[i]	353,282[h]	–
1976	53,882	6,312[k]	–	26,354[i]	36,584	–
1977	36,462	16,876[k]	–	45,544[i]	88,400	–
1978	37,057	11,136	–	32,449[i]	40,800	–
1979	179,627	8,355	–	91,372[i]	119,898	–
1980	26,373	5,137	–	28,933[i]	55,268	–
1981	15,775	23,508	–	74,560	57,386[m]	–
1982	3,601	4,235	–	31,421	15,901	31,958
1983	20,807	7,705	–	49,392	27,200	90,875
1984	16,511	12,411	–	27,130	15,150	56,633[g]
1985	22,805	17,276[k]	–	152,768	56,016[h]	62,010
1986	18,903	6,703[k]	59,313	83,197	31,723[h]	87,990
1987	22,141	21,180	52,416	140,086	48,956[h]	80,776
1988	13,324	18,024	33,619	41,073	23,597[h]	36,786
1989	30,447	21,342[k]	69,161	101,748[p]	43,834[h]	35,750
1990	33,672	8,992[k]	78,631	65,721[q]	35,000[r]	51,755
1991	13,197	32,905[k]	–	90,000[q]	37,733[h]	78,461
1992[s]	10,813	8,893[k]	–	79,315	22,517[h]	46,772
E.O.[t]	> 33,000	> 11,000	–	> 64,000[u]	50,000 – 120,000	> 80,000

[a] Latest table revision February 11, 1993.
[b] Total escapement estimates using Delta River migratory time density curve and percentage of live salmon present by survey date in upper Toklat River area.
[c] Total escapement estimates made from migratory time density curve (see Barton 1986), unless otherwise indicated.
[d] Sonar estimate. From 1981–1985 sonar operations were initiated between August 29 and September 2. From 1986–1990 sonar operations were initiated between August 17 and August 25. For 1991 and 1992 sonar operations were initiated on August 9.
[e] Total escapement estimates using weir to aerial survey expansion factor of 2.72, unless otherwise indicated.
[f] Excludes Fishing Branch River escapment (estimated border passage minus Canadian removal).
[g] Weir installed on September 22. Estimate consists of a wier count of 17,190 after September 22, and a tagging passage estimate of 17,935 prior to weir installation.
[h] Weir estimate.
[i] Total escapement estimates using sonar to aerial survey expansion factor of 2.221.
[k] Population estimate from replicate foot surveys and stream life data.
[m] Initial aerial survey count was doubled before applying the weir/aerial expansion factor of 2.72 since only half of the spawning area was surveyed.
[q] Escapement estimate based on mark–recapture program unavailable. Estimate based on assumed average exploitation rate.
[p] Includes a passage estimate of 20,000 salmon prior to initation of sonar–monitoring operations.
[r] Weir was not operated. Although only 7,541 chum salmon were counted on a single survey flown October 26, a population estimate of approxiately 27,000 fish was made through date of survey, based upon historic average aerial–to–weir expansion of 28%. Actual population of spawners was reported by DFO as between 30,000 – 40,000 fish in view of aerial survey timing.
[s] Preliminary.
[t] Interim escapement objective.
[u] Based on escapement estimates for years 1974–1990.
[m] Data unavailable at this time.

02/25/93

Appendix G.5. Coho salmon escapement counts for selected spawning areas in the Yukon River drainage, 1972–1992.[a]

Year	Andreafsky River		Anvik River	Kantishna River		Nenana River Drainage				Delta Clearwater River[d,f]	Clearwater Lake and Outlet	Richardson Clearwater River
	East Fork	West Fork		Geiger Creek	Barton Creek	Lost Slough	Nenana Mainstem[b]	Wood Creek[c]	17-Mile Slough			
1972	–	–	–	–	–	–	–	–	–	630	417	454[h]
1973	–	–	–	–	–	–	–	–	–	3,322	551[d]	375[d]
1974	–	–	–	–	–	1,388	–	–	27	3,954[g]	560	652[d]
1975	–	–	–	–	–	943	–	–	956	5,100	1,575[d,f]	4[h]
1976	–	–	467[h]	25[j]	–	118	–	–	281	1,920	1,500[d,f]	80[h]
1977	–	–	81[h]	60	–	524	–	310[j]	1,167	4,793	730[d,f]	327
1978	–	–	–	–	–	350	–	300[j]	466	4,798	570[d,f]	–
1979	–	–	–	–	–	227	–	–	1,987	8,970	1,015[d,f]	372
1980	–	–	–	3[j]	–	499	–	1,603[j]	592	3,946	1,545[d,f]	611
1981	1,657[h]	–	–	–	–	274	–	849[k]	1,005	8,563[m]	459[h]	550
1982	–	–	–	81[j]	–	–	–	1,436[k]	–	8,365[m]	–	–
1983	–	–	–	42[j]	–	766	–	1,044[k]	103	8,019[m]	253	88
1984	–	–	–	20	–	2,677	–	8,805[k]	–	11,061	1,368	428
1985	–	–	–	42	–	1,584	–	3,775[k]	2,081	5,358	750	–
1986	–	–	–	5[j]	496	794	–	1,664[k]	218[c,f]	10,857	3,577	146[h]
1987	–	–	–	1,175[j]	–	2,511	–	2,450[k]	3,802	22,300	4,225[d,f]	–
1988	1,913	830	830	159[j]	437	348	–	2,046[k]	–	21,600	825[d,f]	–
1989	–	–	–	155[j]	12[h]	–	–	412[k]	824[h]	11,000	1,600[d,f]	483
1990	–	–	–	211[j]	–	688	1,308	–	15[h]	8,325	2,375[d,f]	–
1991	–	–	–	427[j]	467[h]	564	447	–	52	23,900	3,150[d,f]	–
1992[n]	–	–	–	77[j]	55[h]	372	–	–	490	3,983	229[d,f]	500[d]

[a] Only peak counts presented. Survey rating is fair to good, unless otherwise noted. Latest table revision: February 24, 1993.
[b] Mainstem Nenana River between confluences of Lost Slough and Teklanika River.
[c] Surveyed by F.R.E.D.
[d] Surveyed by Sport Fish Division.
[f] Boat survey.
[g] Aerial Survey.
[h] Poor survey.
[j] Foot survey.
[k] Weir count.
[m] Expanded estimated based on partial survey counts and historic distribution of spawners from 1977–1980.
[n] Preliminary

Appendix G.6 | Age and sex compositon of chinook salmon escapement sampled from selected spawning area from the Yukon River drainage, 1992.

Chinook Salmon

Salmon Spawning Area	Number Sampled	Percent Female	Percent Compositon by Brood Year and Age Group 1989 3	1988 4	1987 5	1986 6	1985 7
East Fork Andreafsky River	25	24.0	0.0	36.0	32.0	24.0	8.0
West Fork Andreafsky River	27	18.5	0.0	11.1	63.0	25.9	0.0
Anvik River (mainstem)	315	41.3	0.0	9.5	38.1	50.8	1.6
Chena River	467	30.9	1.9	42.2	23.8	31.9	0.2
Salcha River	649	37.7	1.2	36.1	33.9	27.9	0.9
Goodpaster River	93	29.0	0.0	32.3	31.2	35.5	1.1
Mainstem Yukon River in Canada							
Sheep Rock Test Fish Wh	93	NA	0	20.4	20.4	52.7	6.5
White Rock Test Fish Wh	1,141	NA	0.7	23.4	41.3	33.6	1.0

Summer Chum Salmon

Salmon Spawning Area	Number Sampled	Percent Female	Percent Compositon by Brood Year and Age Group 1989 3	1988 4	1987 5	1986 6
West Fork Andreafsky River	69	60.9	0.0	24.6	66.7	8.7
Anvik River (mainstem at so	424	56.6	0.3	26.5	69.0	4.2
Beaver Creek	92	35.9	0.0	26.1	72.8	1.1
Yellow River	90	44.4	0.0	30.0	66.7	3.3
Swift River	95	52.6	0.0	54.7	43.2	2.1
Chena River	437	55.2	0.0	13.0	69.6	17.4
Salcha River	851	56.5	Not Available			

Fall Chum Salmon

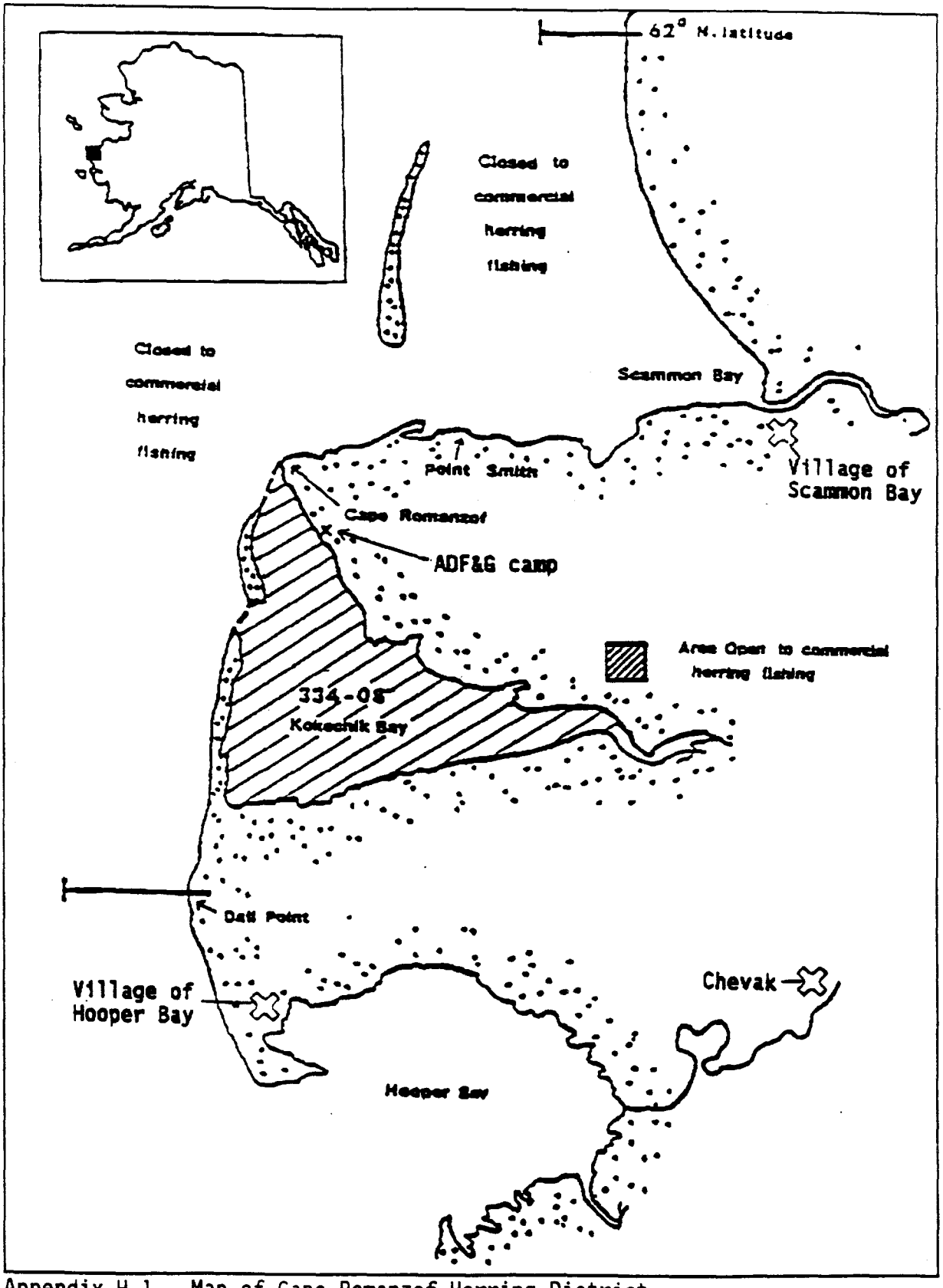
Salmon Spawning Area	Number Sampled	Percent Female	Percent Compositon by Brood Year and Age Group 1989 3	1988 4	1987 5	1986 6
Sheenjek River	134	53.0	0.0	17.9	80.6	1.5
Tanana River (mainstem)	95	24.2	0.0	25.3	70.5	4.2
Toklat River	187	36.4	3.2	44.4	51.3	1.1
Bluff Cabin Slough	145	30.3	0.7	23.4	71.7	4.1
Delta River	145	38.6	0.0	34.5	62.1	3.4
Mainstem Yukon River in Canada						
Sheep Rock Test Fish Wh	708	NA	0.0	26.3	71.5	2.3
White Rock Test Fish Wh	598	NA	0.0	31.6	67.7	0.7

Coho Salmon

Salmon Spawning Area	Number Sampled	Percent Female	Percent Compositon by Brood Year and Age Group 1989 3	1988 4	1987 5	1986 6
Delta Clearwater River	214	28.5	37.9	61.2	0.9	0.0

APPENDIX H

HERRING FISHERY



Appendix H.1. Map of Cape Romanzof Herring District.

Appendix H.2. Commercial herring catch and effort data by fishing period, Cape Romanzof District, 1992.

Date	Time of Fishery	Hours Fished	Number			Period Catch (st)			Roe %
			Fishermen	Vessels	Landings	Bait	Sac Roe	Total	
June 09	2200–2400	2.0	56	56	82	13.9	132.2	146.1	7.07
June 11–12	2200–0200	4.0	72	72	175	0.0	383.6	383.6	8.36
Total		6.0	73	73	257	13.9	515.8	529.7	8.03

Appendix H.3. List of Lower Yukon Area emergency orders pertaining to the Cape Romanzof Herring District, 1992.

E.O. Number	Effective Date	Action Taken	Comments
3-LY-H-01-92	June 9	Established a 2-hour commercial herring fishing period from 10:00 p.m. Tuesday June 9, 1992 until 12:00 midnight Tuesday June 9, 1992. This emergency order also restricts gear to no more than 50 fathoms and one gill net per vessel and prohibits gear other than the legal limit to be on board fishing vessels.	Herring abundance has increased as documented by test net catch rates through June 9. Increased spawn deposition has been documented daily since the initial observation with overall spawn deposition averaging 1 to 2 egg layers.
3-LY-H-02-92	June 11	Established a 4-hour commercial herring fishing period from 10:00 p.m. Thursday June 11, 1992 until 2:00 a.m. Friday June 12, 1992 in the Cape Romanzof District. This emergency order also restricts gear to no more than 50 fathoms and one gill net per vessel and prohibits gear other than the legal limit to be on board fishing vessels.	Increased spawn deposition has been documented almost daily since the initial observation on June 5 with overall spawn deposition averaging 2 egg layers. Herring samples obtained by commercial fishermen at 8:00 p.m. June 11 indicated a majority of the fish were ripe.

Appendix H.4. Commercial herring fishery data, Cape Romanzof District, 1980–1992.

	1980	1981	1982	1983 a	1984	1985	1986	1987	1988	1989	1990	1991	1992
Catch (st)	611	720	657	816	1,185	1,299	1,865	1,342	1,119	926	329	526	530
Hours Fished	326	120	180	144	90	60	42	8	11	13	3	5	6
Percent Roe Recovery	9.8	8.0	9.3	9.0	8.6	8.3	9.2	8.9	9.1	9.3	8.4	8.8	8.0
Estimated Value ($ millions)	0.13	0.21	0.22	0.37	0.31	0.55	1.14	1.00	1.02	0.49	0.15	0.21	0.16
Number of Buyers	2	4	2	3	3	2	5	9	6	6	4	2	2
Number of Fishermen	69	111	75	63	66	73	97	157	113	115	95	80	73
Number of Vessels	54	82	50	57	59	69	90	152	108	110	90	79	73
% Effort by Local Fishermen b	70	81	85	92	98.5	91	84	53	63	87	76	96	97
% Harvest by Local Fishermen b	40	60	84	88	99.8	94	70	33	60	82	77	97	96
Biomass Estimate c	3,000	4,900	4,900	5,500	6,100	7,000	7,500	7,200	6,600	4,400	4,500	4,500	4,500
Exploitation Rate	20.4	14.7	13.4	14.8	19.4	18.6	24.9	18.6	17.0	21.0	7.3	11.7	11.8

a Exclusive Use Regulation into effect.
b Local fishermen defined as residents of Chevak, Hooper Bay, and Scammon Bay.
c Biomass estimates based on qualitative estimates of herring abundance to describe abundance trends, except for 1987, which was by aerial survey.

Appendix H.5. Pacific herring processors and associated data, Cape Romanzof District, 1992.

Commercial Operation (Processing Location/ Buying Station)	Product	District
Icicle Seafoods, Inc. 4019 21st Ave. W. Seattle, WA 98199 (M/V Chichagof, Gandil)	Sac Roe Herring (frozen)	Cape Romanzof
Lafayette Fisheries, Inc. 4259 22nd Ave. W. Seattle, WA 98199 (M/V Afognak, P/V Lafayette) (M/V Zingaro, M/V Northwind)	Sac Roe Herring (frozen)	Cape Romanzof

Appendix H.6. Test sample data collected by commercial fishermen, Cape Romanzof District, 1992.

Capture Date/Time	Mesh Size (inches)	Sample Size Wt.(kg)	Sample Size No.	% Female	Female % Gonad Maturity Gree	Rip	Spei	% Roe	Capture Location
June 9 9:30 a.m.	2 1/2 and 3	70.0	188	41	13	87	0	7.6	onshore 1/4 mile south and 1 mile north of ADF&G camp (ADF&G samples) Range of 4.6 to 10.5% roe for 7 individual samples
June 9 7:30 p.m.	2 3/4	10.0	29	55	6	75	19	11.7	onshore 1/2 mile south of ADF&G camp
		10.0	27	59	19	69	12	10.7	
		10.0	29	41	8	84	8	7.2	
	Subtotal	30.0	85	52	11	75	14	9.9	
	3 1/8	10.0	25	44	0	100	0	11.1	onshore 1 mile north of ADF&G camp
		10.0	26	58	0	93	7	12.2	
	Subtotal	20.0	51	51	0	96	4	11.7	
June 11 10:00 a.m	3	10.0	26	46	8	92	0	10.6	onshore 1 1/2 and 1/2 mile north of ADF&G camp (ADF&G samples)
	2 1/2	10.0	30	50	0	93	7	11.7	onshore 1 1/2 and 1/2 mile north of ADF&G camp (ADF&G samples)
	2 1/4	9.5	34	35	25	67	8	5.4	1/2 mile offshore from ADF&G camp
		10.0	36	42	0	93	7	9.7	
		9.7	35	31	0	100	0	7.4	
	Subtotal	29.2	105	36	8	87	5	7.5	
June 11 8:00 p.m.	3 1/8	10.0	25	56	0	100	0	12.8	onshore 1/2 mile north of ADF&G camp
	3	10.0	25	48	0	100	0	14.4	onshore 1/2 mile south of ADF&G camp
		10.0	31	65	5	95	0	15.7	offshore 1/2 mile south of ADF&G camp
		10.0	28	36	10	80	10	6.6	offshore 1/2 mile south of ADF&G camp
	Subtotal	30.0	84	50	5	93	2	12.2	
	3	10.0	26	58	0	100	0	15.3	onshore near Scammon Bay camp near Cape
		10.0	27	52	0	93	7	10.8	
	Subtotal	20.0	53	55	0	97	3	13.1	
	3	10.0	29	41	8	92	0	11.1	offshore near Scammon Bay camp near Cape
		10.0	29	41	0	100	0	11.3	
	Subtotal	20.0	58	41	4	96	0	11.2	
	2 3/4	10.0	25	44	0	100	0	7.6	1/2 mile offshore from ADF&G camp
		10.0	29	41	0	100	0	8.7	
		10.0	32	47	0	80	20	12.4	
	Subtotal	30.0	86	44	0	92	8	9.6	

Appendix H.7. Subsistence herring harvest (st) and effort data, Cape Romanzof, 1975–1992. a

Year	Scammon Bay	Chevak	Hooper Bay	Total	Number of Fishing Families
1975	–	–	3	3	34
1976	1	1	3	5	41
1977	–	<1	2	<3	30
1978	1	–	4	5	29
1979	6	2	3	11	84
1980	3	4	4	11	61
1981	8	2	4	14	46
1982	4	2	5	11	43
1983	3	1	5	9	37
1984	4	3	4	11	47
1985	2	2	4	8	44
1986	2	1	4	7	41
1987	1	1	1	3	39
1988	2	2	4	7	32
1989	1	<1	2	3	24
1990	2	1	6	8	32
1991	1	<1	2	3	18
1992	1	<1	2	4	30

a Subsistence survey results are believed to reflect harvest trends, however, reported catches reflect minimum figures since all fishermen cannot be contacted.

Appendix H.8. Aerial survey biomass estimates of Pacific herring, Cape Romanzof District, 1992.

Date	Flight		Survey Rating b	Spawn		Biomass (st) Estimates by Index Area a		
	No.	Hrs.		No.	Length (miles)	KOK	SCB	Total
June 5	1	0.33	5	0	0.00	4.6	0.0	4.6
June 7	2	0.58	5	0	0.00	68.4	26.6	95.0
June 11	3	0.50	4	0	0.00	204.3	1,087.8	1,292.1
June 12	4	0.25	5	0	0.00	38.0	0.0	38.0
June 13	5	0.25	5	0	0.00	0.0	0.0	0.0
June 16	6	0.42	3	0	0.00	3,887.5	10.6	3,898.1
June 18	7	0.53	5	0	0.00	14.3	0.0	14.3
Total		2.86		0	0.00			

a Index Areas: KOK–Kokechik Bay and offshore waters from Cape Romanzof to Hooper Bay.
SCB–Scammon Bay (Cape Romanzof to Kun River)

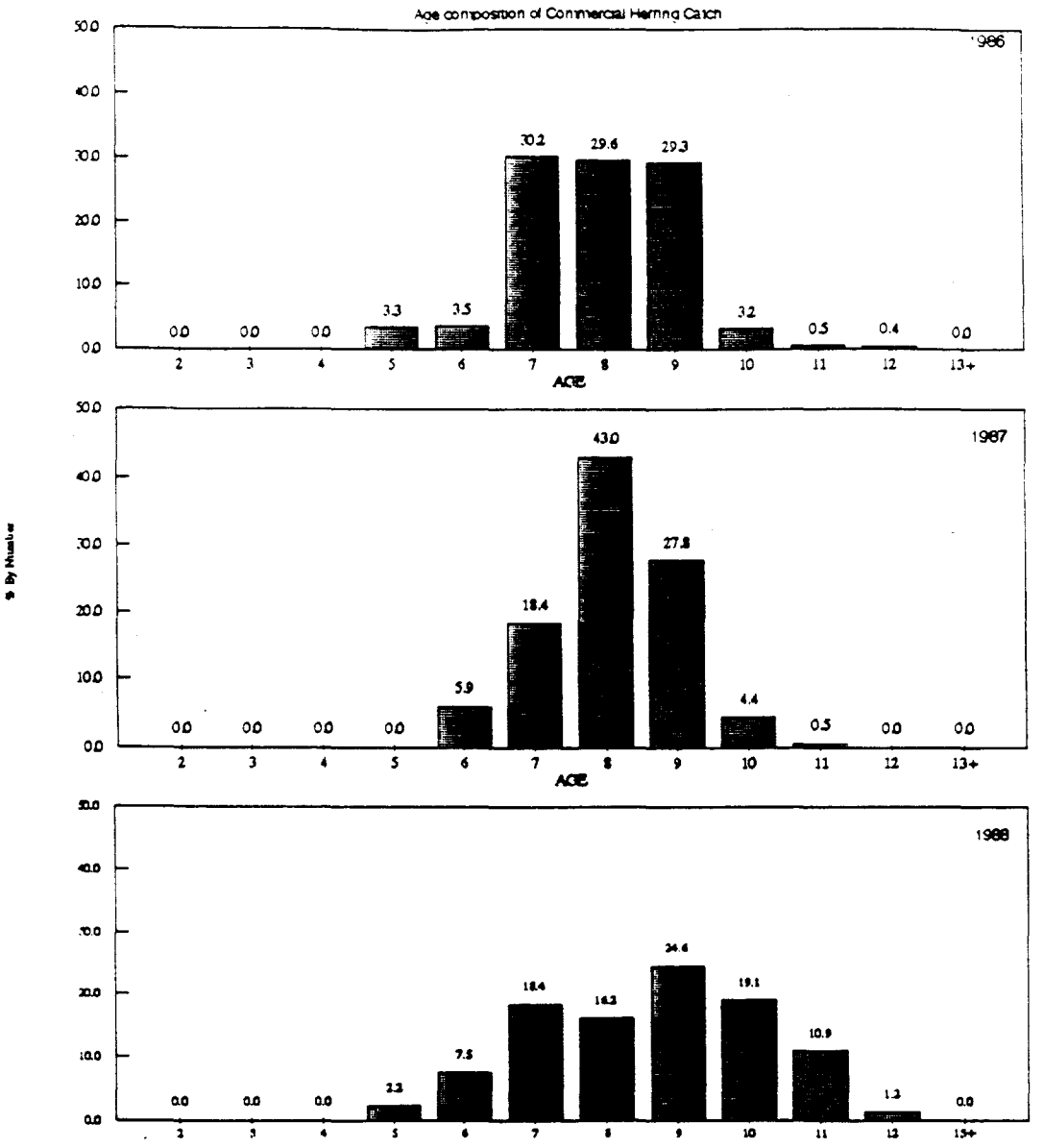
b Survey Rating
1=Excellent (calm, no glare)
2=Good (light ripple, uneven lighting, easy to see schools)
3=Fair (light chop, some glare or shadows, relatively easy to see schools)
4=Poor(rough seas, strong glare, difficult to see schools)
5=Unsatisfactory

Appendix H.9. Percent age composition of herring sampled from commercial harvest, Cape Romanzof District, 1980 – 1992.

Year	Number Sampled b	Age In Years												
		2	3	4	5	6	7	8	9	10	11	12	13+	Total c
1980	374	0.0	2.4	20.1	5.1	38.0	9.9	23.0	0.5	0.3	0.5	0.3	0.0	100.1
1981	315	0.0	0.3	55.9	25.1	1.6	11.7	2.2	3.2	0.0	0.0	0.0	0.0	100.0
1982	604	0.0	0.2	13.7	66.4	13.2	1.2	3.3	1.0	1.0	0.0	0.0	0.0	100.0
1983	913	0.0	0.0	15.8	29.8	45.1	6.7	0.4	1.6	0.4	0.1	0.0	0.0	99.9
1984	543	0.0	0.0	0.6	17.3	35.2	41.3	2.9	1.7	0.6	0.4	0.2	0.0	100.2
1985	583	0.0	0.0	6.5	8.9	34.6	29.3	16.6	3.4	0.5	0.0	0.0	0.0	99.8
1986	570	0.0	0.0	0.0	3.3	3.5	30.2	29.6	29.3	3.2	0.5	0.4	0.0	100.0
1987	407	0.0	0.0	0.0	0.0	5.9	18.4	43.0	27.8	4.4	0.5	0.0	0.0	100.0
1988	414	0.0	0.0	0.0	2.2	7.5	18.4	16.2	24.6	19.1	10.9	1.2	0.0	100.1
1989	702	0.0	0.0	0.0	0.6	3.3	13.0	29.8	11.5	18.5	15.0	7.5	0.9	100.1
1990	287	0.0	0.0	0.0	0.7	9.1	10.8	21.6	23.7	9.8	13.2	7.7	3.5	100.1
1991	591	0.0	0.0	0.0	0.2	1.0	29.1	17.4	15.4	13.4	9.0	8.6	5.9	100.0
1992	401	0.0	0.0	0.0	0.0	1.0	1.0	27.7	17.5	17.5	16.7	7.5	11.1	100.0

a Data from Age, Size, and Sex Composition ADF&G Technical Data Reports, except for 1988 and 1989, which have not been published as yet.
b Number sampled shown are number of fish which could be aged.
c Totals may not equal 100% due to rounding errors.

Appendix H.10. Age composition of herring sampled from commercial harvest, Cape Romanzof District, 1980–1992



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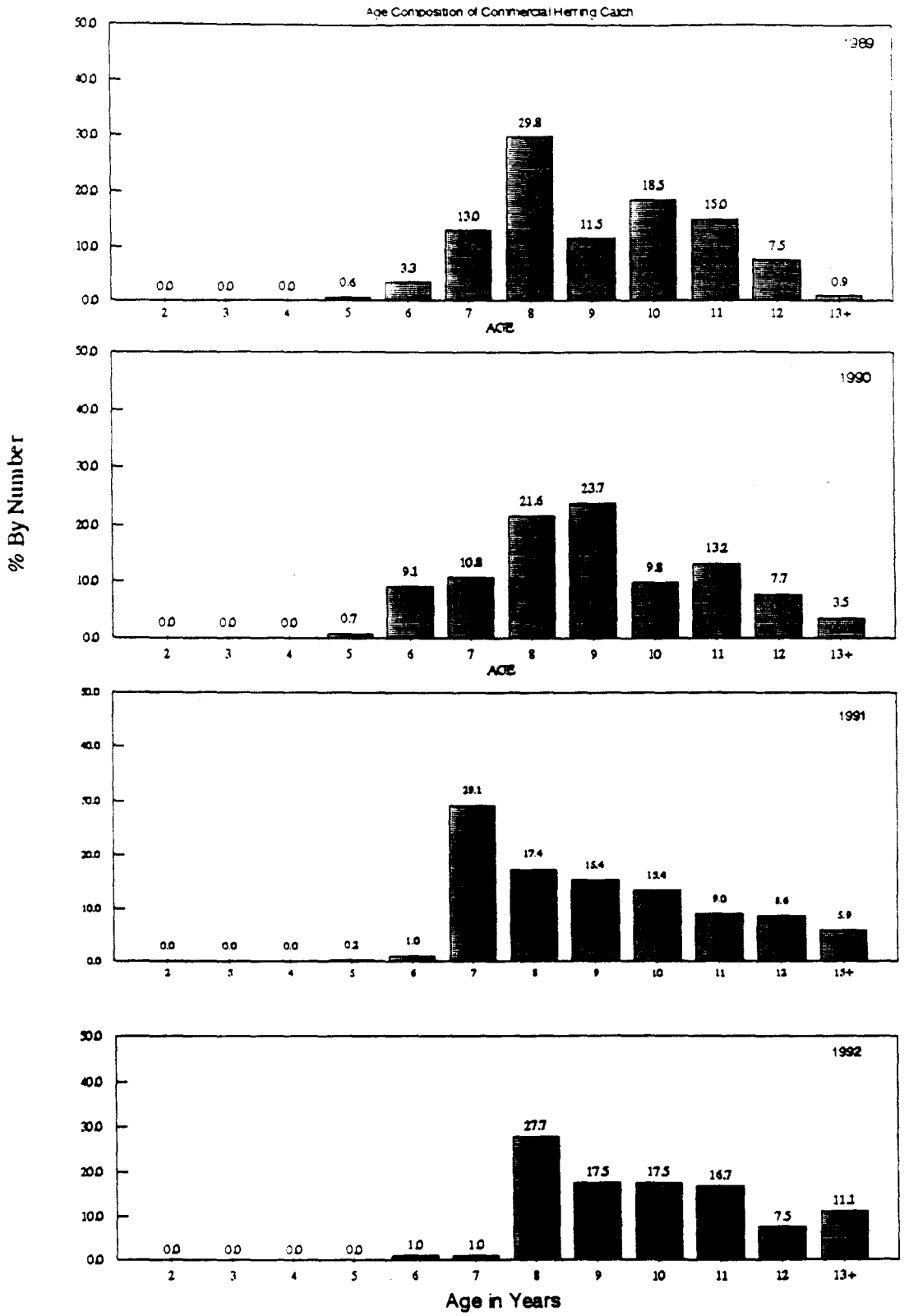
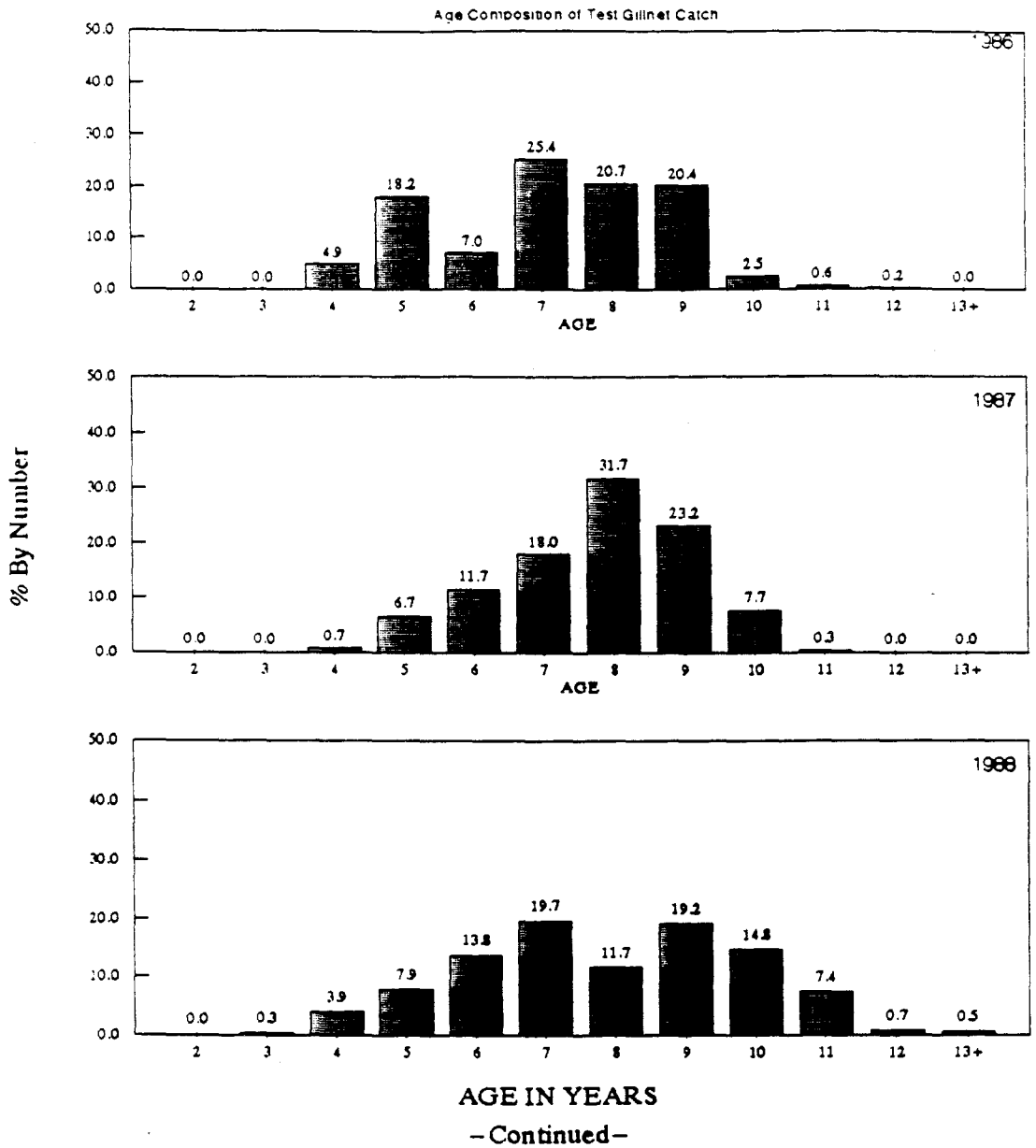

Age Composition of Commercial Herring Catch
1989
0.0 0.0 0.0 0.6 3.3 13.0 29.8 11.5 18.5 15.0 7.5 0.9
1990
0.0 0.0 0.0 0.7 9.1 10.8 21.6 23.7 9.8 13.2 7.7 3.5
1991
0.0 0.0 0.0 0.2 1.0 28.1 17.4 15.4 13.4 9.0 8.6 5.9
1992
0.0 0.0 0.0 0.0 1.0 1.0 27.7 17.5 17.5 16.7 7.5 11.1
2 3 4 5 6 7 8 9 10 11 12 13+
AGE
% By Number
Age in Years

Appendix H.11. Percent age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1980–1992.

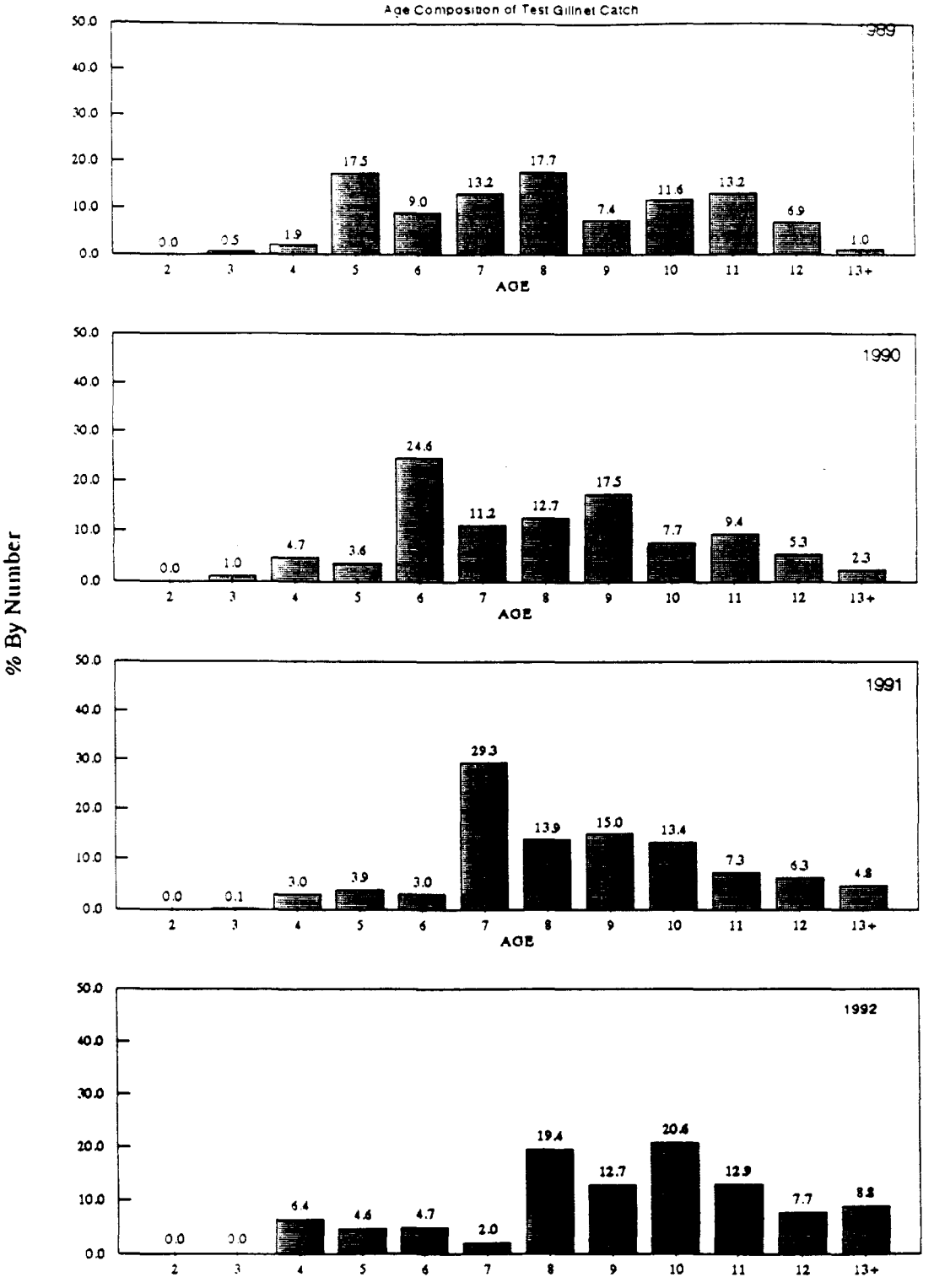
Year	Number Sampled	Age In Years												
		2	3	4	5	6	7	8	9	10	11	12	13+	Total d
1980	447	0.4	19.2	17.0	2.0	27.3	6.9	25.3	0.4	0.4	0.4	0.4	0.0	99.7
1981	589	0.0	7.8	55.3	13.2	1.5	10.4	4.8	6.3	0.2	0.0	0.3	0.2	99.8
1982	611	0.7	7.5	20.3	39.3	9.5	1.8	7.4	7.2	5.6	0.7	0.0	0.2	100.0
1983	829	0.0	0.6	21.2	25.2	39.8	5.3	1.4	3.9	1.9	0.5	0.1	0.0	99.9
1984	735	0.0	1.5	5.7	26.9	19.3	36.1	4.8	3.5	1.6	0.3	0.3	0.0	100.0
1985	531	0.0	1.7	21.8	6.4	22.8	16.9	26.2	2.8	0.8	0.6	0.0	0.0	100.0
1986	511	0.0	0.0	4.9	18.2	7.0	25.4	20.7	20.4	2.5	0.6	0.2	0.0	99.9
1987	690	0.0	0.0	0.7	6.7	11.7	18.0	31.7	23.2	7.7	0.3	0.0	0.0	100.0
1988	608	0.0	0.3	3.9	7.9	13.8	19.7	11.7	19.2	14.8	7.4	0.7	0.5	99.9
1989	378	0.0	0.5	1.9	17.5	9.0	13.2	17.7	7.4	11.6	13.2	6.9	1.0	99.9
1990	1,011	0.0	1.0	4.7	3.6	24.6	11.2	12.7	17.5	7.7	9.4	5.3	2.3	100.0
1991	1,152	0.0	0.1	3.0	3.9	3.0	29.3	13.9	15.0	13.4	7.3	6.3	4.8	100.0
1992	994	0.0	0.0	6.4	4.6	4.7	2.0	19.4	12.7	20.6	12.9	7.7	8.8	99.8

a Data from Age, Size, and Sex Composition ADF&G Technical Data Reports, except for 1988 and 1989, which have not been published as yet.
b Variable mesh test gill net samples include Kokechik Bay and Scammon Bay fish sampled combined.
c Number sampled shown are number of fish which could be aged.
d Totals may not equal 100% due to rounding errors.

Appendix H.12. Age composition of herring sampled from variable mesh gillnet catches, Cape Romanzof District, 1986–1992.



–Continued–


Age Composition of Test Gillnet Catch
1989
0.0 0.5 1.9 17.5 9.0 13.2 17.7 7.4 11.6 13.2 6.9 1.0
1990
0.0 1.0 4.7 3.6 24.6 11.2 12.7 17.5 7.7 9.4 5.3 2.3
1991
0.0 0.1 3.0 3.9 3.0 29.3 13.9 15.0 13.4 7.3 6.3 4.8
1992
0.0 0.0 6.4 4.6 4.7 2.0 19.4 12.7 20.6 12.9 7.7 8.8
2 3 4 5 6 7 8 9 10 11 12 13+
AGE
% By Number
AGE IN YEARS

APPENDIX I

OTHER FINFISH FISHERY

Appendix I.1. Commercial freshwater fishery catches, Lower Yukon Area, 1978–1992.

	Sheefish		Whitefish		Blackfish		Burbot		Pike		Lamprey	
Year	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds
1978	0	0	19	87	0	0	0	0	0	0	0	0
1979	5	39	23	55	0	0	0	0	0	0	0	0
1980	283	2,265	78	250	a	293	0	0	0	0	0	0
1981	299	2,812	779	2,875	0	0	0	0	a	9	0	0
1982	754	6,161	1,633	6,214	0	0	102	482	0	0	0	0
1983	395	2,692	163	648	0	0	0	0	0	0	0	0
1984	94	762	794	2,362	0	0	0	0	0	0	0	0
1985	358	3,081	1,514	4,586	0	0	0	0	0	0	0	0
1986	0	0	1,533	5,845	0	0	0	0	0	0	a	80
1987	0	0	2,144	7,564	0	0	0	0	0	0	0	0
1988	0	0	696	2,171	0	0	0	0	0	0	0	0
1989	0	0	0	0	0	0	0	0	0	0	0	0
1990	0	0	180	260	0	0	0	0	0	0	0	0
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	95	640	0	0	0	0	0	0	0	0

a Information not avaiable.

Appendix I.2. Commercial freshwater fishery catches, Upper Yukon Area, 1971–1992. a

Year	Healy Lake Whitefish		Lake Minichumina Whitefish		Tanana River				Yukon River			
					Burbot		Whitefish		Burbot		Whitefish	
	Numbers	Pounds	Numbers	Pounds	Numbers	Pounds	Number	Pounds	Numbers	Pounds	Numbers	Pounds
1971	0	0	3,277	9,831	0	0	0	0	0	0	0	0
1972	2,605	3,950	718	2,154	0	0	0	0	0	0	0	0
1973	2,187	3,915	1,697	5,037	0	0	0	0	0	0	0	0
1974	1,885	3,390	854	2,562	0	0	0	0	0	0	0	0
1975	1,357	2,375	0	0	0	0	0	0	0	0	0	0
1976	1,440	2,625	0	0	0	0	0	0	0	0	0	0
1977	0	0	0	0	0	0	0	0	0	0	0	0
1978	0	0	0	0	0	0	0	0	0	0	0	0
1979	1,336	2,306	0	0	0	0	0	0	0	0	0	0
1980	b	b	0	0	0	0	0	0	0	0	0	0
1981	0	0	0	0	0	0	0	0	0	0	0	0
1982	0	0	0	0	0	0	0	0	0	0	0	0
1983	0	0	0	0	0	0	0	0	0	0	0	0
1984	0	0	0	0	b	76	0	0	0	0	0	0
1985	0	0	0	0	0	0	0	0	0	0	0	0
1986	0	0	0	0	0	0	72	b	0	0	0	0
1987	0	0	0	0	0	0	0	0	0	0	0	0
1988	0	0	0	0	0	0	837	b	0	0	0	0
1989	0	0	0	0	0	0	0	0	1	b	b	2,070
1990	0	0	0	0	1	b	809	b	0	0	985	2,078
1991	0	0	0	0	0	0	0	0	0	0	0	0
1992	0	0	0	0	0	0	0	0	0	0	0	0

a Numbers reflect fish harvested with the intent of commercial sale.
b Information not avaiable.

Appendix I.3. Colville River commercial whitefish catches, 1964–1992. a

Year	Broad Whitefish	Humpback Whitefish	Arctic Cisco ("kaktok")	Least Cisco ("herring")
1964	2,951 b		16,000	9,000
1965	3,000 b		50,000	0
1966	2,500 b		40,000	0
1967	c	c	c	c
1968	3,130		42,055	18,180
1969	c	c	c	c
1970	2,080 b		19,602	25,930
1971	3,815	132	38,016	22,713
1972	3,850	1,497	37,333	13,283
1973	2,161	0	71,569	25,188
1974	3,117	2,316	35,601	13,813
1975	2,201	1,946	28,291	20,778
1976	2,172	1,815	31,659	34,620
1977	443	1,431	31,796	14,961
1978 d	20	1,102	17,292	21,589
1979	0	1,831	8,684	24,984
1980	0	4,231	14,657	31,459
1981	1,035	469	38,206	16,584
1982	1,662	201	15,067	25,746
1983	0	408	18,162	35,322
1984	789	179	27,686	13,076
1985	401	191	23,679	17,595
1986	0	18	29,895	9,444
1987	5	1,989	24,769	10,922
1988	429	6,733	10,287	23,910
1989	71	6,575	17,877	23,303
1990	0	5,694	19,374	21,003
1991	0	1,240	13,805	5,697
1992	126	5,209	20,939	6,962

a Numbers reflect fish harvested with the intent of commercial sale.
Approximate Average weights: Broad whitefish 5.1 lbs.
Least cisco 0.9 lbs.
Arctic cisco 1.0 lbs.

b Includes small numbers of humpback whitefish.

c Information not avaiable.

d Also reported taken were 1 chinook, 2 sockeye, 9 chum, and 118 pink salmon.

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